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# Series 1900 Pressure Switch

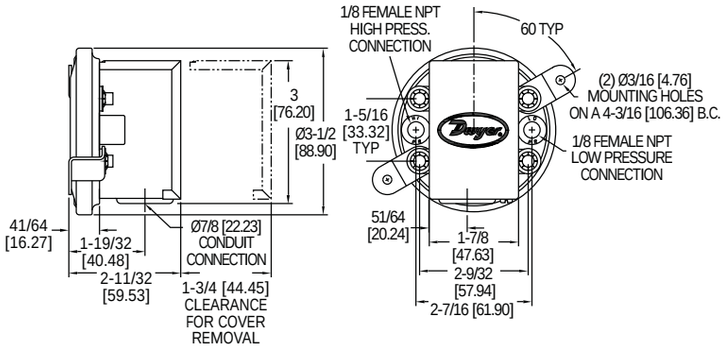
## Specifications - Installation and Operating Instructions



**Series 1910 pressure switch. All pressure and electrical connections and set point adjustments are on one side for easy installation.**



**Series 1910 switch with conduit enclosure off. Shows electric switch and set point adjustment screw.**




**The Dwyer-engineered force-motion amplifier increases the leverage of diaphragm movement and results in a switch with excellent sensitivity and repeatability.**

**Advanced design and precision** construction permit these switches to perform many of the tasks of larger, costlier units. Designed for air conditioning service, they also serve many fluidics, refrigeration, oven and dryer applications. For use with air and non-combustible gases. Series 1900 switches are available with set points of 0.07 to 20 inches water column. Set point adjustment can be made easily - before or after installation. Range screw is inside conduit enclosure to help prevent tampering. For easy mounting and access, pressure and electrical connections and set point adjustment are located on one side. This permits installation in corners or spaces too small for other switches.

### SPECIAL MODELS & ACCESSORIES

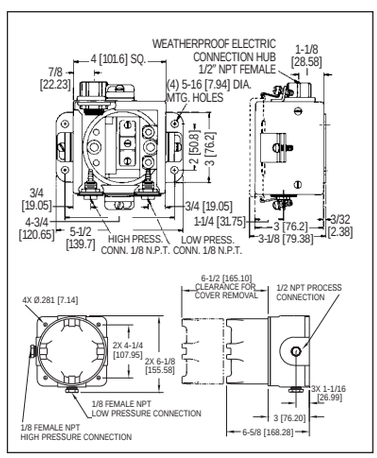
Special close coupled street elbow for right angle pressure connections. Can be installed on switch anytime. Zinc plated aluminum.

**Weatherproof Housing**

16 ga. steel enclosure with gasketed cover (NEMA 4) for wet or oily conditions. Withstands 200 hour salt spray test. Wt. 5 lbs. (2.3 kg). Switch must be factory installed. Change 1910 base number to 1911 and add -WP suffix. Example: 1911-1-WP.

**Explosion-Proof Housing**

NEMA 7, 9 NEMA 3. (7 lbs). Switch must be factory installed. Change model to 1911 and add -EXPL suffix. Example: 1911-1-EXPL. Aluminum base and cover rated Class I, Groups C & D, Div. 1. Class II, Groups E, F, & G, Div. 1.




### SPECIFICATIONS

**Service:** Air and non-combustible, compatible gases.
**Wetted Materials:** Consult Factory.
**Temperature Limits:** -30 to 180°F (-34 to 82.2°C) (32°F for non dry air).
**Pressure Limits:** 45″ w.c. (11.2 kPa) continuous, 10 psig ( 68.95 kPa) surge.
**Switch Type:** Single-pole double-throw (SPDT).
**Repeatability:** ±3%.
**Electrical Rating:** 15 A @ 120-480 VAC, 60 Hz. Resistive 1/8 HP @125 VAC, 1/4 HP @ 250 VAC, 60 Hz. Derate to 10 A for operation at high cycle rates.
**Electrical Connections:** 3 screw type, common, normally open and normally closed.
**Process Connections:** 1/8″ female NPT.
**Mounting Orientation:** Diaphragm in vertical position. Consult factory for other position orientations.
**Set Point Adjustment:** Screw type inside conduit enclosure.
**Weight:** 1lb. 4.5 oz. (581 g).
**Agency Approvals:** CE, UL, CSA, FM.
ATEX: For ATEX compliant model change the Series Number to 1911 and add a “-CN” suffix. These versions follow Directive 94/9/EC ATEX compliant for CE Ex II 2 G EEx d IIB T6.

**NOTE:** For ATEX units wire in accordance with local electrical codes. Cable should enter enclosure housing through an approved EX cable gland (not supplied).

### SERIES 1910 SWITCHES — MODELS OPERATING RANGES, DEADBANDS

| Model Number | Operating Range, Inches W.C. | Approximate Dead Band | |
|---|---|---|---|
| | | At Min. Set Point | At Max. Set Point |
| **1910-00** | 0.07 to 0.15 | 0.04 | 0.04 |
| **1910-0** | 0.15 to 0.55 | 0.10 | 0.10 |
| **1910-1** | 0.40 to 1.6 | 0.15 | 0.16 |
| **1910-5** | 1.40 to 5.5 | 0.30 | 0.30 |
| **1910-10** | 3.0 to 11.75 | 0.40 | 0.40 |
| **1910-20** | 4.0 to 20.0 | 0.40 | 0.50 |

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## INSTALLATION

1. Select a location that is free from excessive vibration, corrosive atmosphere and where the ambient temperature is within the limits for these switches.

2. Mount standard switches with the diaphragm in a vertical plane and with switch lettering and nameplate in an upright position. Some switches are position sensitive and may not reset properly unless they are mounted with the diaphragm vertical. (Special units can be furnished for other than vertical mounting arrangements if required.)

3. Connect switch to source of pressure, vacuum or differential pressure. Metal tubing with 1/4″ O.D. is recommended, but any tubing which will not restrict the air flow can be used. Connect to the two 1/8″ female NPT pressure ports as noted below:

• Differential pressures - connect pipes or tubes from source of greater pressure to high pressure port marked HI-PR and from source of lower pressure to low pressure port marked LO-PR.
• Pressure only (above atmospheric) - connect tube from source of pressure to high pressure port. The low pressure port is left open to atmosphere.
• Vacuum only (below atmospheric pressure) - connect tube from source of vacuum to low pressure port. The high pressure port is left open to atmosphere.

4. Electrical connections to the standard single pole, double throw snap switch are provided by means of screw terminals marked “common”, “norm open”, and “norm closed”. The normally open contacts close and the normally closed contacts open when pressure increases beyond the set point.

5. Switch loads should not exceed the maximum specified current rating of 15 amps resistive. Switch capabilities decrease with high load inductance or rapid cycle rates. Whenever an application involves either of these factors, the user may find it desireable to limit the switched current to 10 amps or less in the interest of prolonging switch life.

## OPERATION

Pressure acting on the power diaphragm rotates the amplifying lever, which in turn extends the range spring and rotates the snap switch input lever. When the set point is reached, the snap switcch is actuated and the electrical contacts make or break.

## ADJUSTMENT

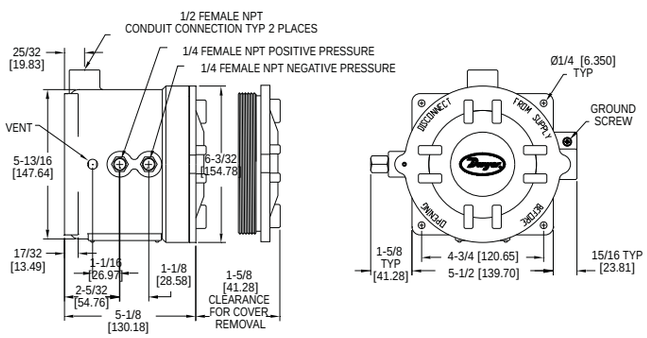
To change the set point, proceed as follows:
A. Remove the snap-on cover from the conduit enclosure by loosening its retaining screw and pulling firmly at its bottom end. Turn the slotted adjustment screw at the top of range spring housing clockwise to raise the set point pressure and counter-clockwise to lower the set point.

B. The recommended procedure for calibrating or checking calibration is to use a “T” assembly with three rubber tubing leads, all as short as possible and the entire assembly offering minimum flow restriction. Run one lead to the pressure switch, another to the manometer of known accuracy and appropriate range, and apply pressure through the third tube. Make final approach to the set point very slowly. Note that manometer and pressure switch will have different response times due to different internal volumes, lengths of tubing, fluid drainage etc. Be certain the switch is checked in the position it will assume in use, i.e. with diaphragm in a vertical plane and switch lettering and nameplate in an upright position.

C. For highly critical applicaitons it is a good idea to check the set point adjustment and reset it as necessary once or twice in the first few months of operation. This will compensate for any change in initial tension which may occur in the spring and diaphragm. For most applications this change will not be significant and no resetting will be required.

## MAINTENANCE

Moving parts of these switches are sealed in and are permanently tamper proof. The single adjustment is that of the set point. Care should be taken to keep the switch reasonably dry and free from dust or dirt. No lubrication or unusual precautions are required for normal use.




**ATEX Compliant Housing**
Base number 1911 with -CN suffix.

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# Presostatos Serie 1900

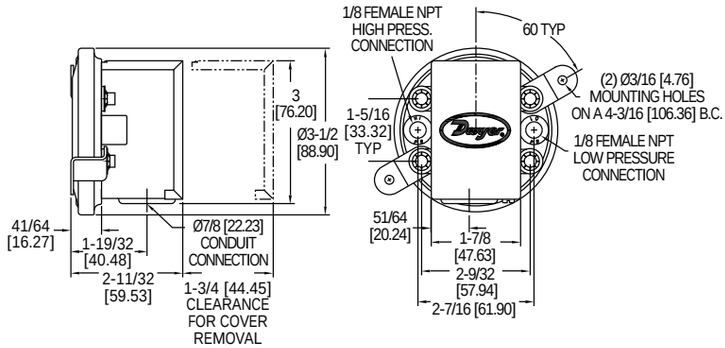
## Instrucciones de Montaje y Operación



Series 1910 pressure switch. All pressure and electrical connections and set point adjustments are on one side for easy installation.



Series 1910 switch with conduit enclosure off. Shows electric switch and set point adjustment screw.




The Dwyer-engineered force-motion amplifier increases the leverage of diaphragm movement and results in a switch with excellent sensitivity and repeatability.

**El diseno avanzado y la constucción prcisa permitne** que estospresostatos reemplacen a otros de mayor precio y tamaño. Sirven para uso en acondicionamiento de aire, hornos, secaderos y aplicaciones en fluídica y refrigeración. Aptos para uso en aire y gases no combustibles. Ranges disponibles desde 0.07″ a 20″ de C.A.

El ajuste puede ser antes o después de instalado. El tornillo de ajuste está oculto dentro de la cubierta de conexiones para evitar manipuleo indebido. El ajuste, las conexiones de presión y elelctricas están de un solo lado para facilitar el montaje. Esto permite la instalación en rincones o lugares estrechos.

### MODELOS Y ACCESORIOS ESPECIALES

Accesorio Dwyer A-329

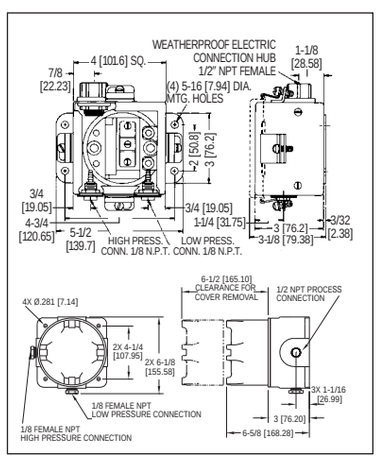
Codo de conexión an ángulo recto. Puede instalarse en cualquier momento. Construcción en aluminio zincado.

**Gabinete Hermético**

Gabinete de acero cal. #16 para ambientes extremadamente húmedos o aceitosos. Peso 5 lb. Presóstato instalado en fábrica. Especifique “WP” más el nro. de modelo.

**Gabinete Antiexplosivo**

Base de hierro fundido y tapa en aluminio. Peso aprox. 5 lb. Especifique “EXPL” más el nro. de modelo.




### SPECIFICATIONS

**Service:** Air and non-combustible, compatible gases.
**Wetted Materials:** Consult factory.
**Temperature Limits:** -30 to 180°F (-34 to 82.2°C) (32°F for non dry air).
**Pressure Limits:** 45″ w.c. (11.2 kPa) continuous, 10 psig ( 68.95 kPa) surge.
**Switch Type:** Single-pole double-throw (SPDT).
**Repeatability:** ±3%.
**Electrical Rating:** 15 A @ 120-480 VAC, 60 Hz. Resistive 1/8 HP @125 VAC, 1/4 HP @ 250 VAC, 60 Hz. Derate to 10 A for operation at high cycle rates.
**Electrical Connections:** 3 screw type, common, normally open and normally closed.
**Process Connections:** 1/8″ female NPT.
**Mounting Orientation:** Diaphragm in vertical position. Consult factory for other position orientations.
**Set Point Adjustment:** Screw type inside conduit enclosure.
**Weight:** 1lb. 4.5 oz. (581 g).
**Agency Approvals:** CE, UL, CSA, FM.

### PRESOSTATOS SERIE 1910
### RANGOS Y BANDA MUERTA

| Modelo | Rango | Banda Muerta | |
|---|---|---|---|
| | | Aj. Minimo | Aj. Máximo |
| **1910-00** | 0,07 to 0,15 | 0,04 | 0,04 |
| **1910-0** | 0,15 to 0,55 | 0,10 | 0,10 |
| **1910-1** | 0,40 to 1,6 | 0,15 | 0,16 |
| **1910-5** | 1,40 to 5,5 | 0,30 | 0,30 |
| **1910-10** | 3,0 to 11,75 | 0,40 | 0,40 |
| **1910-20** | 4,0 to 20,0 | 0,40 | 0,50 |

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**INSTALACION**

1. Elija un sitio donde no haya vibraciones excesivas, atmósfera corrosiva, y la temperatura se mantenga dentro de los límites tolerados por el presóstato (vea las especificaciones).

2. Instale el presóstato con el diafragma en un plano vertical, y el Logo de DWYER y la escritura de la etiqueta en la parte superior. Algunos instrumentos son sensibles a la posición y no conmutarian adequadamente si el diafragma no está vertical.

Si se requiere, se pueden suministrar unidades especiales para montaje en distinte posición.

3. Conecte el presostato a proceso por medio de los conectores hembra NPT de 1/8˝. Se recomienda para esto., utilizar tubo metalico de 1/4˝ diam. ext. sin embargo puede usarse cualquier tubo que no retrinja el paso de aire. Recuerde que:

• Presión diferencial: Conecte la alta presion a HI-PR (alta presion) y la baja a LO-PR (baja presion).
• Presión: conecte la presión (superior a la atmosférica) a HI-PR, dejando LO-PR abierto a la atmósfera.
• Vacío: igual gue para Presión, pero invirtiendo las conexiones a proceso. Deje el conector no utilizado abierto a la atmósfera.

4. Las conexiones electricas se efectúan mediante terminales a tornillo, marcados “ Common” (Común); “Norm Open” (Normal Abierto) y “Norm Closed: ( Normal Cerrado). Los contactos se invierten al incrementarse la presión por sobre el ajuste (set point).

5. La corriente no debe exceder do los 15 A sobre carga resistiva, La capaciedad del interruptor decrece con cargas inductivas, o ciclos rápidos de conmutación. Cuando estas condiciones se presenten, o se esté en dudas acerca de las mismas, se recomienda limitar la corriente a 10 A para prolgar la vida util de interuptor. Otro método consiste enaumentar la capacidad de corriente del interruptor mediante un relé para alta corriente o contactor. Consulte al Representante de DWYER en caso necesario.

**OPERACION**

La presión actúa sobre el diafragma, girando la palanea amplificadora. Esta a su vez, extiende el resorte antagónico (de calibrasión) el que está mecánicamente vinculado a la palanca actuadora del interruptor inversor: Al alcanzarse el valor preajustado, la condición de los contactos se invierte, es decir el NA pasa cerrado, y el NC pasa abierto.

**AJUSTE**

Para cambiar el ajuste, proceda de la siguiente manera:
A. Retire la tapa cubre-conexiones aflojando el tornillo de retención, y tirando firmemente de su extremo inferior. Gire el tornillo de ajuste en sentido horario para incrementar la presión de actuación, o bien gírelo en sentido anti-horario para disminuir la misma.

B. El procedimiento más seguro y simple para consequir una calibración correcta (o la verificación) del punto de trabajo es la siguiente:
1. Conecte una tubería de goma de poca longitud desde el presóstato a una T de conexión, otra desde la T a un manómetro de exactitud reconocida, y otra desde una fuente disponible de presión.
2. Aplique presión lentamente, teniendo en cuenta gue el presóstato y el manómetro pueden tener diferentes tiempos de reacción debido a diferencias en volumen de aire, además de otras caracteríStcas mecanicas diferentes. La aproximación final al punto de trabajo debe ser muy lenta.
3. Asegúrese que el presóstato está en posición correcta de funcionamiento, o por lo menos en la posición que será montado. Recuerde que el funcionamiento correcto de la unidad corresponde a montaje vertical del diafragma.

C. En aplicaciones muy críticas, es conveniente durante los primeros meses de servicio verificar el punto de trabajo, y eventualmente restablecer el contacto varias veces, para compensar cambios iniciales en la tension del resorte antagónico, y diafragma. En la mayoría de los casos, esto no es necesario.

**MANTENIMIENTO**

Las partes móviles y contactos están sellados, siendo inalterables. El único ajuste disponible es del punto de trabajo. Evite ingreso de suciedad y acumulación humedad. No se requiere lubricación periódica.

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