The Series 634S Pressure Transmitter senses a single air, compatible gas or liquid pressure and converts it into a standard 4-20 mA output signal. Ranges are available from 0-10 through 0-6000 psi. All models are field adjustable so any range within these limits can be achieved by recalibration using the easily accessible span and zero potentiometers. Versatile circuit design enables use in 2, 3 or 4-wire current loops.

Positive pressure can be measured within an accuracy of ±0.5% of span. The Series 634S uses an isolated piezoresistive pressure sensor to produce a resistance change across a wheatstone bridge. The signal is conditioned and converted into a 4-20 mA output signal.

For applications requiring direct pressure or percent of full span readings, the optional A-701 digital readout makes an ideal companion device, providing a bright .6" high, 3 1/2 digit LED and supplying power to the Series 634S Transmitter.

**STOCKED MODELS** in bold

<table>
<thead>
<tr>
<th>Model Number</th>
<th>As Stocked</th>
<th>Min. Range</th>
<th>Max. Range</th>
<th>Max. Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>634S-0</td>
<td>10 (.69)</td>
<td>10 (.69)</td>
<td>20 (1.38)</td>
<td>30 (2.07)</td>
</tr>
<tr>
<td>634S-1</td>
<td>30 (2.07)</td>
<td>20 (1.38)</td>
<td>40 (2.76)</td>
<td>60 (4.14)</td>
</tr>
<tr>
<td>634S-2</td>
<td>50 (3.45)</td>
<td>40 (2.76)</td>
<td>60 (4.14)</td>
<td>100 (6.9)</td>
</tr>
<tr>
<td>634S-3</td>
<td>100 (6.9)</td>
<td>60 (4.14)</td>
<td>125 (8.3)</td>
<td>200 (13.6)</td>
</tr>
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<td>634S-4</td>
<td>200 (13.6)</td>
<td>100 (6.9)</td>
<td>250 (17.2)</td>
<td>400 (27.5)</td>
</tr>
<tr>
<td>634S-5</td>
<td>300 (20.7)</td>
<td>250 (17.2)</td>
<td>350 (24.1)</td>
<td>500 (34.5)</td>
</tr>
<tr>
<td>634S-6</td>
<td>500 (34.5)</td>
<td>350 (24.1)</td>
<td>600 (41.4)</td>
<td>1000 (69)</td>
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<td>1000 (69)</td>
<td>600 (41.4)</td>
<td>1250 (86)</td>
<td>2000 (138)</td>
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<td>634S-8</td>
<td>2000 (138)</td>
<td>1250 (86)</td>
<td>2500 (172)</td>
<td>4000 (276)</td>
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<tr>
<td>634S-9</td>
<td>4000 (276)</td>
<td>2500 (172)</td>
<td>6000 (414)</td>
<td>7500 (517)</td>
</tr>
</tbody>
</table>

**PHYSICAL DATA**

**GENERAL**

- **Maximum Pressure:** See chart on this page.
- **Wetted Parts:** 316, 316L Stainless Steel.
- **Electrical**
  - **Power Supply:** 12.3-35 VDC - 2, 3. or 4 wire
  - 18-26 VAC - 4 wire
  - **Connections:** 4-screw terminal block.
- **Output Signal:** 4-20 mA DC (limited at 38 mA DC).
- **Loop Resistance:** DC: 0 - 1100 ohms.
  - AC: 0 - 1130 ohms.
- **Current Consumption:** DC: 38 mA max.
  - AC: 76 mA max.

**MATERIALS**

- **Housing:** Mineral and glass filled nylon.
- **Cover:** High-impact acrylic.
- **Pressure Connection:** Stainless Steel.

**MECHANICAL**

- **Weight:** 8 ounces (227 grams).
- **Span and Zero Controls:** Protected potentiometers.
- **Cable Gland:** Fits .10 - .25” (.25 - 6 mm) O.D. tubing.
- **Pressure Connection:** 1/8” female NPT.

**PERFORMANCE AT 70°F (21.1°C)**

- **Zero Output:** 4 mA DC.
- **Full Span:** 16 mA AC.
- **Accuracy:** ±0.5% of span.
- **Warm-Up Time:** 10 minutes.

**STABILITY/ENVIRONMENTAL**

- **Operating Temperature:** 20 to 120°F (- 6.7 to 49°C).
- **Thermal Errors:** ± 0.02%/°F typical.
- **Stability:** 1% F.S./yr.

**STANDARD ACCESSORIES**

(2) # 10 x 1” pan head sheet metal screws.
Series 634S Pressure Transmitter

Specifications - Installation and Operating Instructions

INSTALLATION

LOCATION: Select a location where temperature of the unit will be between 20°F and 120°F. Distance from the receiver is limited only by total loop resistance. See “Electrical Connections.” The tube feeding the pressure to the instrument can be run practically any length required, but long lengths will slightly increase response time. Avoid surfaces with excessive vibration.

POSITION: A vertical position is recommended, as all stocked models are spanned and zeroed at the factory in this position. They can be used at other angles, but should be spanned and zeroed while in the alternative position.

PRESSURE CONNECTIONS: A single 1/8″ female NPT pressure connection is located within the 3/4″ square block at the bottom of the transmitter housing. Attach your source of positive pressure to this port.

MOUNTING: Attach the transmitter to a vertical surface using the #10 x 1″ pan head sheet metal screws provided. Mounting holes are located in upper left and lower right corners of case.

ELECTRICAL CONNECTIONS

CAUTION: DO NOT EXCEED SPECIFIED SUPPLY VOLTAGE RATINGS. PERMANENT DAMAGE NOT COVERED BY WARRANTY WILL RESULT. THIS UNIT IS NOT DESIGNED FOR 120 OR 240 VOLT AC LINE OPERATION.

Electrical connections to the Series 634S Transmitter are made inside the enclosure on the left side of the unit. Remove the cover, feed stripped and tinned leads through the bottom holes, and connect to terminal block screws marked 1, 2, 3 and 4. Refer to Figure B for locations of terminal block, span and zero adjust potentiometers.

Wire Length - The maximum length of wire connecting transmitter and receiver is a function of wire size and receiver resistance. Wiring should not contribute more than 10% of receiver resistance to total loop resistance. For extremely long runs (over 1000 feet) choose receivers with higher resistances to minimize size and costs of connecting leads. When wiring length is under 100 feet, lead wire as small as 22 AWG can be used.

2-WIRE CONNECTION

2-Wire Operation - An external power supply delivering 12.3-35 VDC with minimum current capability of 40 mA DC (per transmitter) must be used to power the control loop. See Figure C (above) for connection of power supply, transmitter and receiver. Note the jumper between terminals 3 and 4.

The range of appropriate receiver load resistance (RL) for the DC power supply voltage available is expressed by the formula and graph in Figure F on the next page.

Shielded 2-wire cable is recommended for control loop wiring. If grounding is required, use negative side of control loop after receiver. In Figure C, if power supply lead to terminal 1 is positive, ground should be connected to wiring at right of receiver. Otherwise, in 2-wire operation it is not necessary to observe polarity of control loop connections.
3-WIRE CONNECTION

3-Wire Operation - An external power supply delivering 12.3-35 VDC with minimum current capability of 40 mA DC (per transmitter) is required. See Figure D above for connection of power supply, transmitter and receiver. The range of appropriate receiver load resistance ($R_L$) for the DC power supply voltage available is expressed by the formula and graph in Figure F to the right. Shielded cable is recommended for control loop wiring. Do not employ a separate ground in 3-wire operation. Unit will not function properly and/or damage could result. Control loop polarity must be observed in the following respect. Although power supply terminals in 1 and 2 are not polarized, the receiver must be connected between terminal 4 of transmitter and negative side of power supply.

4-WIRE CONNECTION

4-Wire Operation - An external power supply delivering 12.3-35 VDC with minimum current capability of 40 mA DC (per transmitter) or 18-26 VAC with minimum current capability of 80 mA AC (per transmitter) is required. See Figure E for connection of power supply, transmitter and receiver.

The range of appropriate receiver load resistance ($R_L$) for the DC or AC power supply available is expressed by the formula and graph in Figures F and G below. Shielded cable is recommended for control loop wiring. Do not employ a separate ground in 4-wire operation. Unit will not function properly or damage could result. Control loop polarity must be observed; terminal 3 is negative and terminal 4 is positive. Power supply terminals 1 and 2 are not polarized.

POWER SUPPLY VOLTAGE

VDC (2, 3 OR 4-WIRE)

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POWER SUPPLY VOLTAGE

VDC (4-WIRE)
Voltage Input - Series 634S Pressure Transmitters can be easily adapted for receivers requiring 1-5 or 2-10 VDC input. Insert a 249 ohm, 1/2 watt (1-5 VDC) or 499 ohm (2-10 VDC) resistor in series with the current loop but in parallel with the receiver input. Locate this resistor as close as possible to the input. Because resistor accuracy directly influences output signal accuracy, use of a precision ± 0.1% tolerance resistor to minimize the effect is highly recommended. See Figures H and J below.

3-WIRE CONNECTION (1-5/2-10 VDC OUTPUT)

Fig. H

4-WIRE CONNECTION (1-5/2-10 VDC OUTPUT)

Fig. J

MULTIPLE RECEIVER INSTALLATION

An advantage of the standard 4-20 mA DC output signal is that any number of receivers can be connected in series in the current loop. Thus, an A-701 Digital Readout Accessory, an analog panel meter, a chart recorder, process controlling equipment, or any combination of these devices can be operated simultaneously. It is only necessary that these devices all be equipped with a standard 4-20 mA input and that proper polarity of the input connections be observed when inserting the device in the current loop. If any of the receiving devices displays a negative or downscale reading, this indicates that the signal input leads are reversed.

MAINTENANCE

Upon final installation of the Series 634S Transmitter and the companion receiver, including the A-701 Digital Readout, no routine maintenance is required. A periodic check of system calibration is recommended. The Series 634S Pressure Transmitter is not field serviceable and should be returned, freight prepaid, to the factory if repair is required. The A-701 Digital Readout should be returned to the manufacturer if service is needed. Refer to the A-701 instruction sheet.