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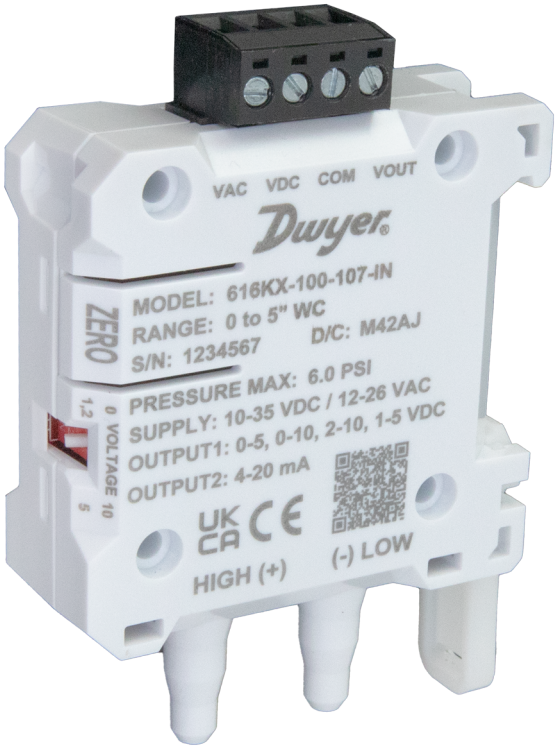
USER'S GUIDE

Series 616KX

Differential Pressure Transmitter



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Bulletin P-616KX

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1. Introduction

The Series 616KX Differential Pressure Transmitter senses the pressure of air and compatible gases and sends a standard 4 mA to 20 mA and voltage output signal. A wide range of models are available factory calibrated to specific ranges. A single push button adjusts zero pressure. The 616KX housing was designed to be clipped to a 35 mm DIN rail or surface mounted with screws.

2. Installation

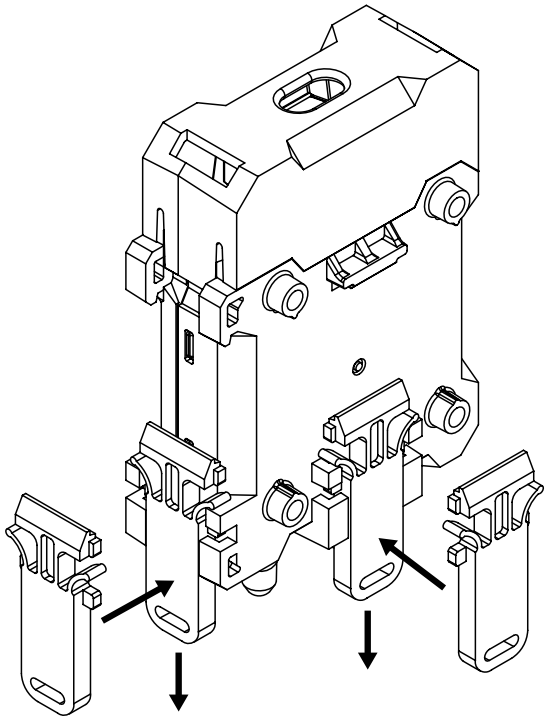


Figure 1

2.1. Location

Select a clean, dry mounting location free from excess vibration where the temperature will remain between –4 °F and 158 °F (-20 °C and 70 °C). The 616KX can be mounted to a 35 mm DIN rail using either its side or back DIN rail clips. To remove the DIN rail clip, pull straight downwards until it clicks. Then, tilt the bottom of the clip towards the pressure connection. To install the DIN rail clip, place the clip in the housing slot (see Figure 1) and pull downwards until it clicks into place. Unit can also be screw mounted using the 4 through holes on the front of the unit and #6 screws (See line art above).

2.2. Position

A vertical orientation, with pressure connections pointing down, is recommended. For other orientations, follow the Zero Adjustment procedure on the next page after mounting in the final orientation.

2.3. Pressure Connections

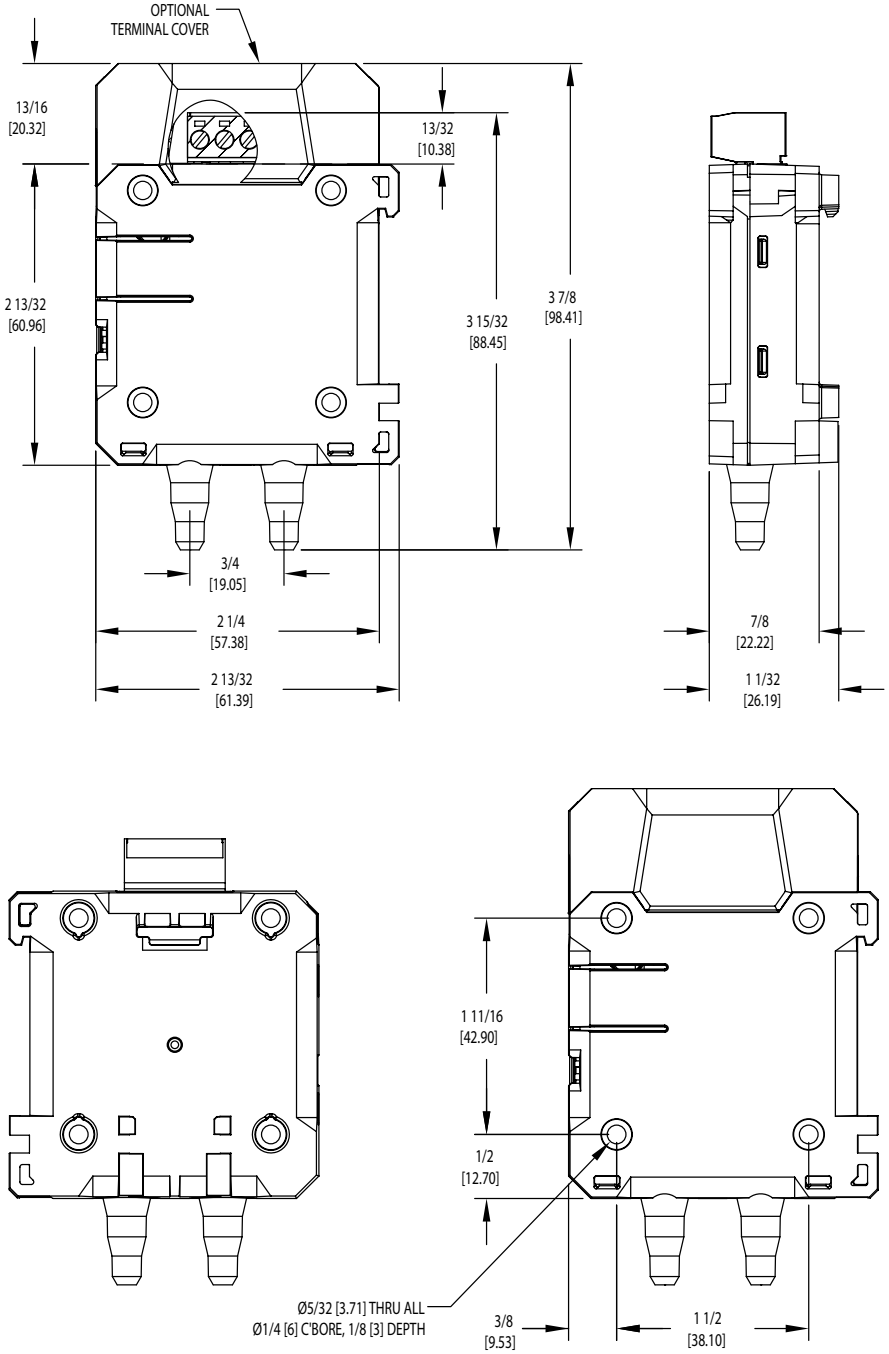
Two integral barbed tubing connections are provided. They are dual-sized to fit 1/8 in, 3/16 in, ¼ in, 5 mm, and 6 mm I.D. tubing. An optional 1/8 in NPT or BSPT connection is also available. When installing the NPT unit, use a thread sealant and not to over-torque the fittings. Do not exceed 6 turns. The tubing supplying pressure to the instrument can be any length required, but long lengths will increase response time.

3. Specifications

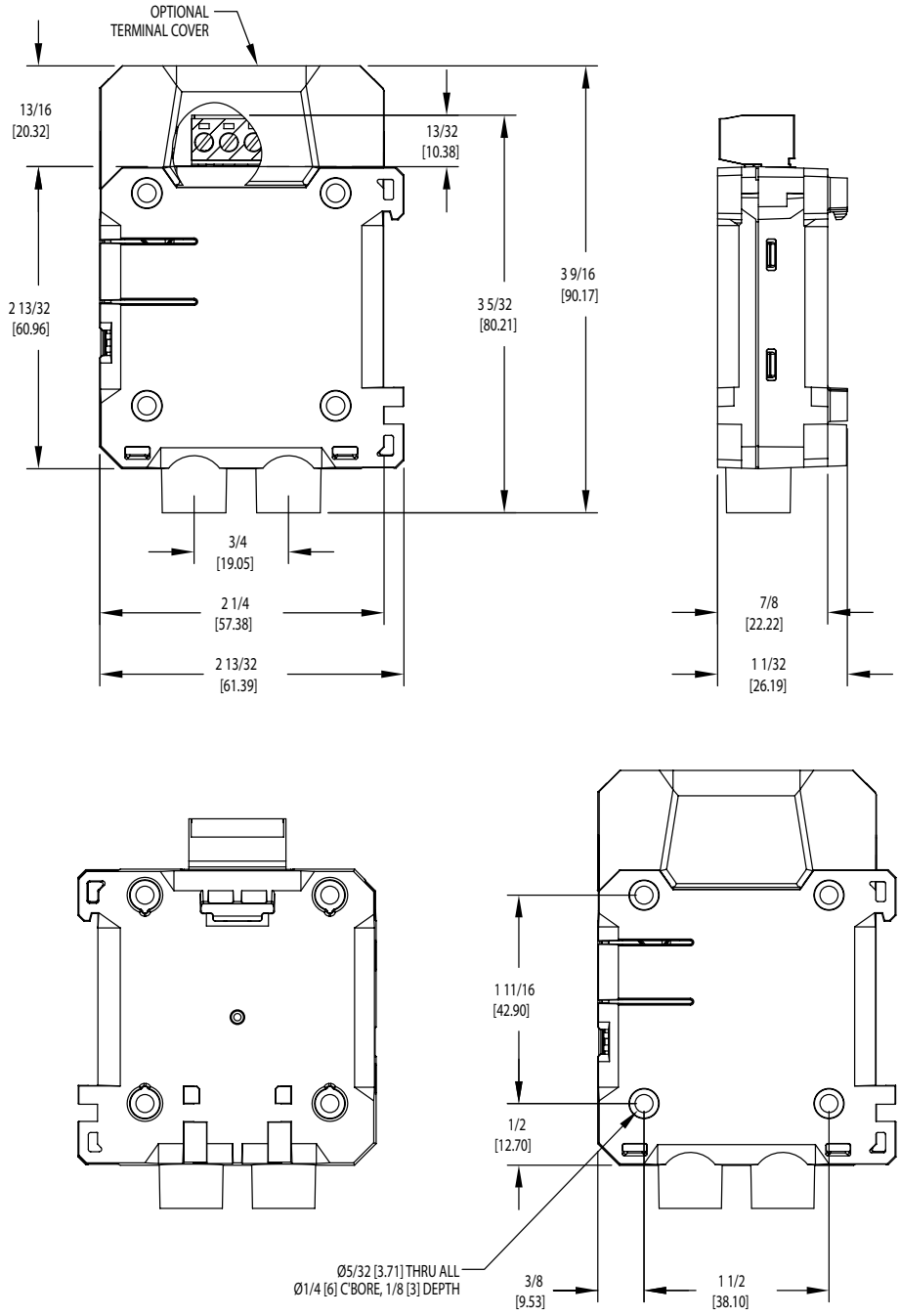
Service: Air and non-combustible, compatible gases.
Wetted Materials: Consult factory.
Accuracy: 616KX-025: ±0.25 % FSO; 616KX-050: ±0.5 % FSO; 616KX-100: ±1 % FSO; 616KX-200: ±2 % FSO.
Stability: ±1 % FS/year.
Temperature Limits: -4 °F to 158 °F (-20 °C to 70 °C).
Pressure Limits: 3.6 psig (ranges 1 in w.c. or lower); 6 psig (ranges 2 in w.c. to 40 in w.c.).
Thermal Effect: ±0.02 % FS / °F (±0.036 % FS / °C)
Power Requirements: 10 Vdc to 36 Vdc (2-wire), 17 Vdc to 36 Vdc or isolated 21.6 Vac to 33 Vac (3-wire).
Output Signal: 4 mA to 20 mA and field selectable 0 V to 10 V, 0 V to 5 V, 2 V to 10 V, 1 V to 5 V.

Zero Adjustment: Push button.
Loop Resistance: 4 mA to 20 mA output (DC): 0 Ω to 1250 Ω max.; Voltage output: min. load resistance 1k Ω
Current Consumption: 21 mA max continuous
Electrical Connections: Removable Screw-type terminal block for 12 AWG to 26 AWG wire.
Process Connections: Barbed sizes to fit 1/8 in , 3/16 in, ¼ in, 5 mm, and 6 mm ID rubber or vinyl tubing. Optional 1/8 in female NPT or 1/8 in female BSPT threads.
Enclosure Rating: NEMA 1 (IP20)
Mounting Orientation: Pressure sensor measurement unaffected by orientation.
Weight: 5.0 oz (142 g)
Compliance: CE, UKCA, UL94 V-0, UL 2043 (Plenum)

Dimensions



Standard dimensions



-NPT or BSPT variant dimensions

4. Electrical

The 616KX transmitter utilizes a 2-wire 4 mA to 20 mA Current Output, or a 3-wire Voltage Output. It is also capable of Simultaneous Current and Voltage Output. The screw-style terminal block is removable and each of the terminals are labeled on the front of the housing.

4.1. 2-Wire 4 mA to 20 mA Current Output

Caution
Do not exceed specified supply voltage ratings. Permanent damage not covered by warranty will result.

The connections to the transmitter are made through terminals Vdc and COM on the terminal block. Polarity is indicated by Vdc and COM as shown in Figure 2.

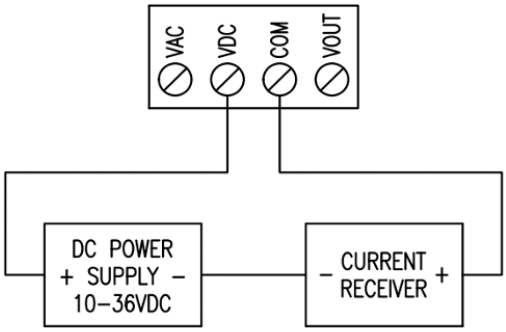


Figure 2

4.2. 3-Wire Voltage Output

Caution
Do not exceed specified supply voltage ratings. Permanent damage not covered by warranty will result.

Positive polarity is indicated by VOUT. AC/DC selection is made via the terminal block with Vdc being used for DC power supply and Vac being used for AC supply. If the polarity of the transmitter is inadvertently reversed, the unit will not function properly, but no damage will be done to the transmitter.
See Figure 3 for DC Wiring.
See Figure 4 for AC Wiring.

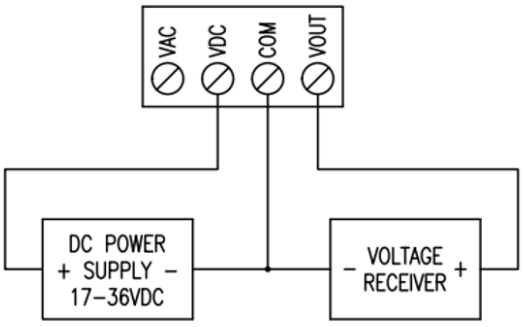


Figure 3

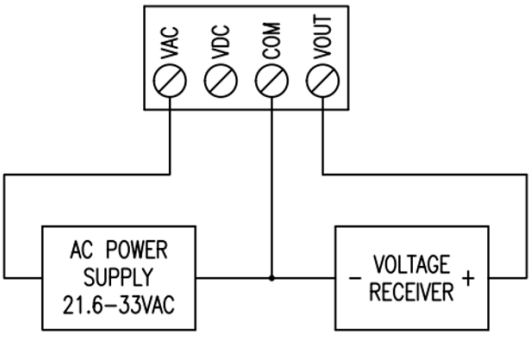


Figure 4

4.3. Simultaneous Current and Voltage Output

Caution
Do not exceed specified supply voltage ratings. Permanent damage not covered by warranty will result. Simultaneous outputs are not designed for ac voltage operation.

Positive polarity is indicated by VOUT. The Vdc terminal and a DC power supply must be used for simultaneous current and voltage output. The voltage output and the power supply must have separate wire leads that are only joined at terminal 2 of the transmitter. Additional error may occur for the voltage output if a single wire is used or if the wires are joined at the power supply or receiver. See Figure 5.

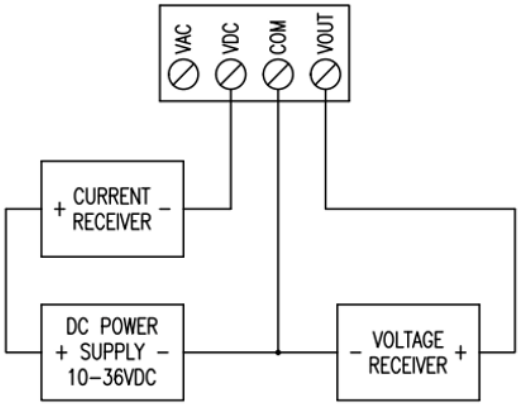


Figure 5

5. Zero Adjustment

A single push button is provided to zero the transmitter. The zero calibration can be set by applying zero pressure to both pressure ports and pressing the zero button for 3 seconds. Span is factory calibrated to the range specified on the label. There is no user span adjustment necessary.

6. Changing Output Signal

To change the Voltage output signal, use the DIP switches on the side of the unit. The unit comes from the factory in the 0 V to 10 V setting. See the table below for other voltage output options.

DIP Switch Voltage Output Options		
Dip Switch 1	**DIP Switch 2**	**Voltage Output**
Down	Down	1 V to 5 V
Up	Down	0 V to 5 V
Down	Up	2 V to 10 V
Up	Up	0 V to 10 V

Warning
There are no hazardous voltages if supplied power is within the specified range. However, it is a good idea to shut control systems down while changing DIP switches to prevent erratic control system behavior.

7. Precautions

- Disconnect power before wiring. Never connect or disconnect wiring with the power applied. Do not allow live wires to touch the circuit board.
- An isolation transformer is recommended when powering the device with AC power.
- Do not run the wiring in any conduit with line voltage.
- Failure to wire devices with the correct polarity when using a shared transformer may result in damage to any device powered by the shared transformer.
- Do not disassemble the unit. All user features are accessible from the outside of the unit.
- Do not apply pressure above the maximum pressure listed on the unit. Permanent damage to the unit may occur

8. Maintenance/Repair

Upon final installation of the Series 616KX, no routine maintenance is required. The Series 616KX is not field serviceable and it is not possible to repair the unit. Field repair should not be attempted and may void warranty.

9. Warranty/Return

Refer to "Terms and Conditions of Sale" in our catalog and on our website. Contact customer service to receive a Return Goods Authorization number before shipping the product back for repair. Be sure to include a brief description of the problem plus any additional application notes.

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