



# 5 VDC OUTPUT PRESSURE TRANSDUCER

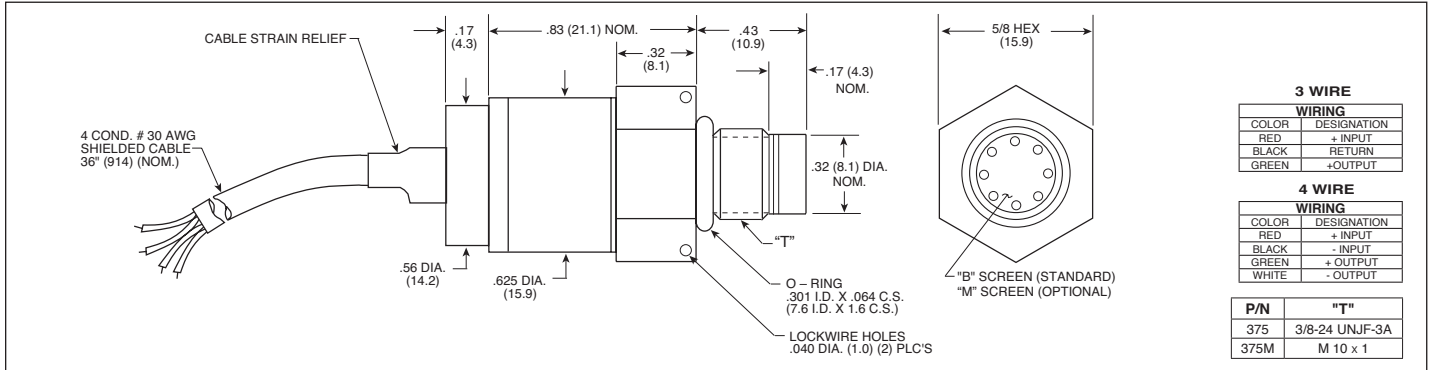
## ETM-375 (M) SERIES

- 5 VDC Output
- Hybrid Microelectronic Regulator-Amplifier
- Silicon on Silicon Integrated Sensor **VIS**<sup>®</sup>
- Flush Diaphragm
- All Welded Construction
- Secondary Containment On Absolute And Sealed Gage Units
- 3/8-24 UNJF or M10 X 1 Thread
- 4 Wire (ETM-375) 3 Wire (ETM-300-375)
- Intrinsically Safe Applications Available (i.e. IS-ETM-375)



ETM-375 Series transducers are miniature, threaded flush diaphragm instruments. They utilize a flush metal diaphragm as a force collector. Force is transferred to a solid state piezoresistive sensing element via a thin intervening film of non-compressible silicone oil. This sensing sub-assembly is protected from mechanical damage by a solid screen

which has been shown to have minimal influence of the frequency response of the sensor. For applications where a true flush diaphragm is needed, Kulite will supply these transducers without the screen. Incorporation of a Kulite proprietary electronics module within the main body of this product allows for operation from an unregulated power supply of  $12 \pm 4$  VDC or  $28 \pm 4$  VDC. Standard output is a stable, low noise 0 to 5 VDC signal.



|   | 17<br>250   | 35<br>500            | 70<br>1000           | 170<br>2500                               | 350<br>5000          | 700<br>10000         | 1400 BAR<br>20000 PSI |
|---|---|----------------------|----------------------|---|----------------------|----------------------|-----------------------|
| <b>INPUT</b>  |   |                      |                      |   |                      |                      |                       |
| Pressure Range  |   |                      |                      |   |                      |                      |                       |
| Operational Mode  | Absolute, Gage, Sealed Gage   |                      |                      |   |                      |                      |                       |
| Over Pressure   | 2 Times Rated Pressure to 1000 PSI (70 BAR) 1.5 Times Rated Pressure Above 1000 PSI to a Max. of 30000 PSI (2100 BAR) |                      |                      |   |                      |                      |                       |
| Burst Pressure  | 3 Times Rated Pressure to a Max. of 35000 PSI (2400 BAR)  |                      |                      |   |                      |                      |                       |
| Pressure Media  | Any Liquid or Gas Compatible With 15-5 PH or 316 Stainless Steel  |                      |                      |   |                      |                      |                       |
| Maximum Electrical Current                              | 25 mA   |                      |                      |   |                      |                      |                       |
| Rated Electrical Excitation                             | 8 - 16 VDC  |                      |                      | 13 - 32 VDC                               |                      |                      |                       |
| <b>OUTPUT</b>   |   |                      |                      |   |                      |                      |                       |
| Full Scale Reading                                      | 5 VDC $\pm$ 150 mV  |                      |                      | 5 VDC $\pm$ 150 mV or 10 VDC $\pm$ 300 mV |                      |                      |                       |
| Output Impedance  | 200 Ohms (Max.)   |                      |                      |   |                      |                      |                       |
| Bandwidth (-3dB)  | DC to 5 KHz   |                      |                      |   |                      |                      |                       |
| Residual Unbalance                                      | 0 to 100 mV (ETM-375)   |                      |                      | 200 mV $\pm$ 50 mV (ETM-300-375)          |                      |                      |                       |
| Combined Non-Linearity, Hysteresis and Repeatability    | $\pm$ 0.1% FSO BFSL (Typ.), $\pm$ 0.5% FSO (Max.)   |                      |                      |   |                      |                      |                       |
| Resolution  | Infinitesimal   |                      |                      |   |                      |                      |                       |
| Natural Frequency of Sensor Without Screen (KHz) (Typ.) | Greater Than 400 KHz  |                      |                      |   |                      |                      |                       |
| Acceleration Sensitivity % FS/g Perpendicular           | 2.2x10 <sup>-4</sup>  | 1.1x10 <sup>-4</sup> | 6.2x10 <sup>-5</sup> | 2.6x10 <sup>-5</sup>                      | 1.5x10 <sup>-5</sup> | 1.3x10 <sup>-5</sup> | 8.0x10 <sup>-6</sup>  |
| Insulation Resistance                                   | 100 Megohm Min. @ 50 VDC  |                      |                      |   |                      |                      |                       |
| <b>ENVIRONMENTAL</b>                                    |   |                      |                      |   |                      |                      |                       |
| Operating Temperature Range                             | -65°F to +250°F (-55°C to +120°C)   |                      |                      |   |                      |                      |                       |
| Compensated Temperature Range                           | 0°F to +212°F (-18°C to +100°C) Other Ranges Quoted on Request  |                      |                      |   |                      |                      |                       |
| Thermal Zero Shift                                      | $\pm$ 1% FS/100° F (Typ.)   |                      |                      |   |                      |                      |                       |
| Thermal Sensitivity Shift                               | $\pm$ 1% /100° F (Typ.)   |                      |                      |   |                      |                      |                       |
| Linear Vibration  | 100g Peak, Sine up to 5000 Hz   |                      |                      |   |                      |                      |                       |
| Mechanical Shock  | 100g half Sine Wave 11 msec. Duration   |                      |                      |   |                      |                      |                       |
| <b>PHYSICAL</b>   |   |                      |                      |   |                      |                      |                       |
| Electrical Connection                                   | 4 Conductor 30 AWG Shielded Cable 36" Long  |                      |                      |   |                      |                      |                       |
| Weight  | 24.5 Grams (Max.) Excluding Cable   |                      |                      |   |                      |                      |                       |
| Pressure Sensing Principle                              | Fully Active Four Arm Wheatstone Bridge Dielectrically Isolated Silicon on Silicon                                    |                      |                      |   |                      |                      |                       |
| Mounting Torque   | 80 Inch-Pounds (Max.)   |                      |                      |   |                      |                      |                       |

Note: Custom pressure ranges, accuracies and mechanical configurations available. Dimensions are in inches. Dimensions in parenthesis are in millimeters. All dimensions nominal. (P) Continuous development and refinement of our products may result in specification changes without notice. Copyright © 2014 Kulite Semiconductor Products, Inc. All Rights Reserved. Kulite miniature pressure transducers are intended for use in test and research and development programs and are not necessarily designed to be used in production applications. For products designed to be used in production programs, please consult the factory.