

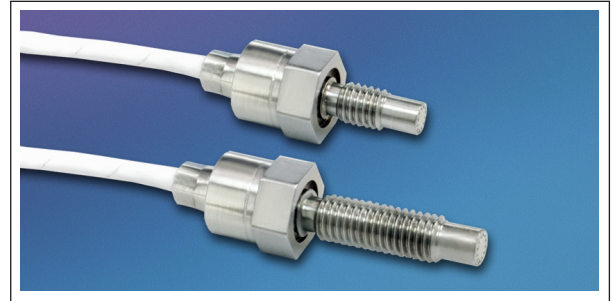


# CRYOGENIC MINIATURE RUGGEDIZED PRESSURE TRANSDUCER CTL-190 (M) SERIES

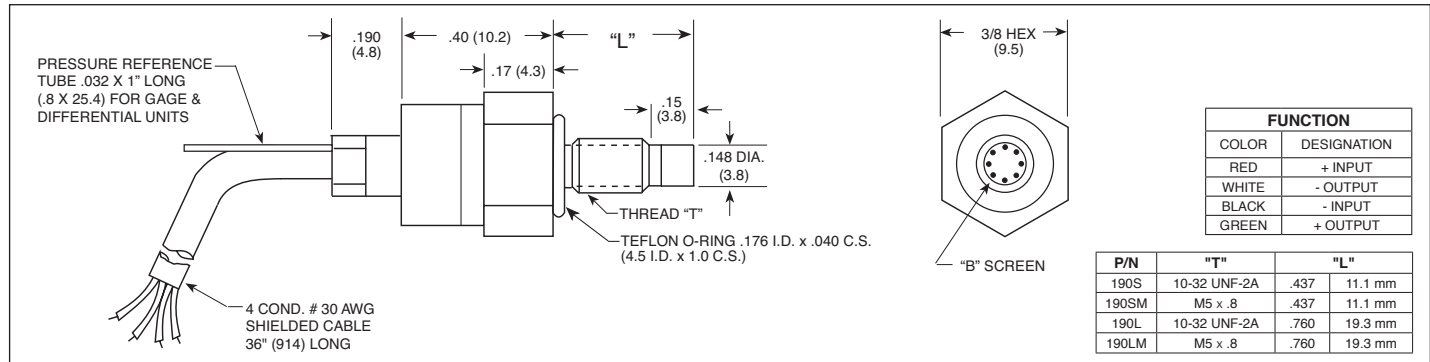
- Cryogenic Operation -320°F to +250°F (-195.5°C to +120°C)
- Low Ranges Available
- Patented Leadless Technology VIS®
- Excellent Stability and Repeatability
- High Frequency Response

Similar in design to the XTL-190 Series, these sensors are specifically intended for use at cryogenic temperature. The extremely good low temperature stability of Kulite Sensors make them ideally suited for this application.

Part performance not guaranteed if used in water.



Kulite recommends the **KSC Series** of signal conditioners to maximize the measurement capability of the CTL-190 transducer.



INPUT	Pressure Range	0.35 5	0.7 10	1.7 25	3.5 50	7 100	17 250	35 500	70 1000	140 BAR 2000 PSI	
	Operational Mode	Absolute, Gage, Differential		Absolute, Gage, Sealed Gage, Differential			Absolute, Sealed Gage				
	Over Pressure	2 Times Rated Pressure to 500 PSI (35 BAR), 1.5 Times Rated Pressure Above 500 PSI (35 BAR)									
	Burst Pressure	3 Times Rated Pressure to a Maximum of 5000 PSI (350 BAR)									
	Pressure Media	Most Conductive Liquids and Gases (Please Consult Factory) (All Media May Not Be Suitable With O-Ring Supplied)									
	Rated Electrical Excitation	10 VDC									
	Maximum Electrical Excitation	12 VDC									
OUTPUT	Input Impedance	1000 Ohms (Min.)									
	Output Impedance	1000 Ohms (Nom.)									
	Full Scale Output (FSO)	100 mV (Nom.)									
	Residual Unbalance	± 5 mV (Typ.)									
	Combined Non-Linearity, Hysteresis and Repeatability	± 0.1% FSO BFSL (Typ.), ± 0.5% FSO (Max.)									
	Resolution	Infinitesimal									
	Natural Frequency of Sensor Without Screen (KHz) (Typ.)	150	175	240	300	380	550	700	1000	1400	
ENVIRONMENTAL	Acceleration Sensitivity % FS/g Perpendicular	1.5x10 <sup>-3</sup>	1.0x10 <sup>-3</sup>	5.0x10 <sup>-4</sup>	3.0x10 <sup>-4</sup>	1.5x10 <sup>-4</sup>	1.0x10 <sup>-4</sup>	6.0x10 <sup>-5</sup>	4.5x10 <sup>-5</sup>	2.0x10 <sup>-5</sup>	
	Insulation Resistance	100 Megohm Min. @ 50 VDC									
	Operating Temperature Range	-320°F to +250°F (-195.5°C to +120°C)									
	Compensated Temperature Range	-300°F to +100°F (-184.4°C to +37.5°C)									
	Thermal Zero Shift	± 2% FS/100°F (Typ.) ± 3% FS/100°F Max.)				± 1% FS/100°F (Typ.) (± 2% FS/100°F Max.)					
	Thermal Sensitivity Shift	± 2% /100°F (Typ.) (± 3% /100°F Max.)				± 1% /100°F (Typ.) (± 2% /100°F Max.)					
	Linear Vibration	10-2,000 Hz Sine, 100g. (Max.)									
PHYSICAL	Mechanical Shock	20g half Sine Wave 11 msec. Duration									
	Electrical Connection	4 Conductor 30 AWG Shielded Cable 36" Long									
	Weight	4 Grams (Nom.) Excluding Cable									
	Pressure Sensing Principle	Fully Active Four Arm Wheatstone Bridge Dielectrically Isolated Silicon on Silicon Patented Leadless Technology									
Mounting Torque	15 Inch-Pounds (Max.) 1.7 Nm										

Note: Custom pressure ranges, accuracies and mechanical configurations available. Dimensions are in inches. Dimensions in parenthesis are in millimeters. All dimensions nominal. (N) 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.



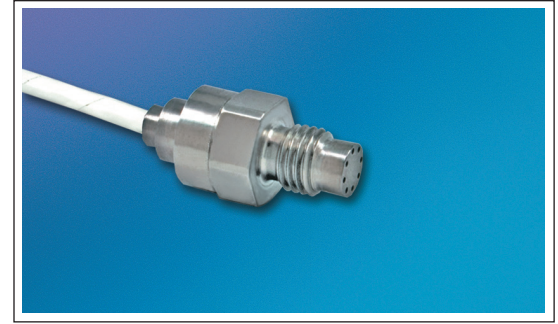
# CRYOGENIC MINIATURE RUGGEDIZED PRESSURE TRANSDUCER

## CTL-312 (M) SERIES

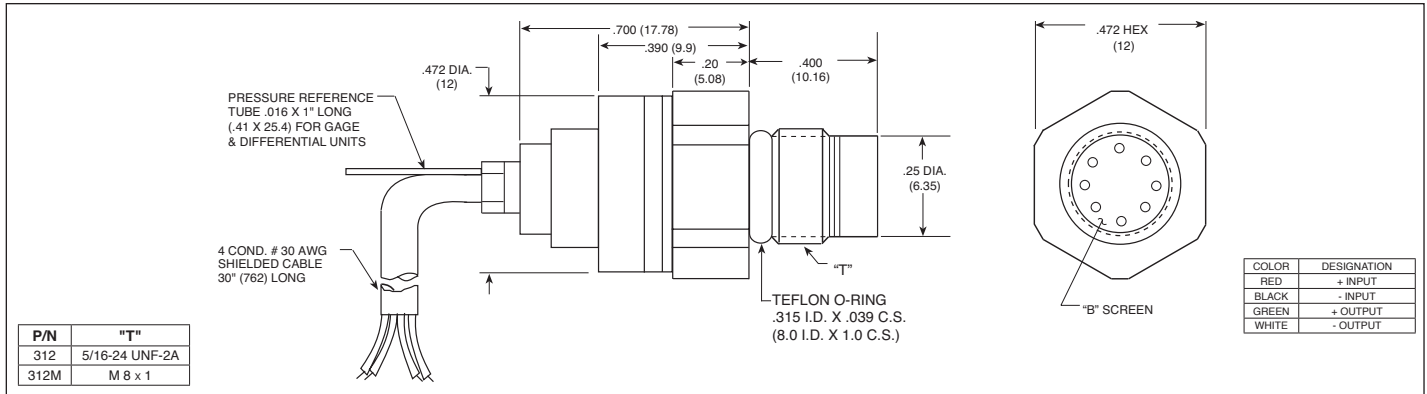
- Cryogenic Operation -320°F to +250°F (-195.5°C to +120°C)
- Low Ranges Available
- Patented Leadless Technology VIS®
- Excellent Stability and Repeatability
- High Frequency Response

Similar in design to the HKL-312 Series, these sensors are specifically intended for use at cryogenic temperature. The extremely good low temperature stability of Kulite Sensors make them ideally suited for this application.

Part performance not guaranteed if used in water.



Kulite recommends the [KSC Series](#) of signal conditioners to maximize the measurement capability of the CTL-312 transducer.



INPUT	Pressure Range	1.7 25	3.5 50	7 100	17 250	35 500	70 1000	140 BAR 2000 PSI
	Operational Mode	Absolute, Gage, Sealed Gage, Differential			Absolute, Sealed Gage			
	Over Pressure	2 Times Rated Pressure to 500 PSI (35 BAR), 1.5 Times Rated Pressure Above 500 PSI (35 BAR)						
	Burst Pressure	3 Times Rated Pressure to a Maximum of 5000 PSI (350 BAR)						
	Pressure Media	Most Conductive Liquids And Gases - Please Consult Factory (All Media May Not Be Suitable With O-Ring Supplied)						
	Rated Electrical Excitation	10 VDC						
	Maximum Electrical Excitation	12 VDC						
OUTPUT	Input Impedance	1000 Ohms (Min.)						
	Output Impedance	1000 Ohms (Nom.)						
	Full Scale Output (FSO)	100 mV (Nom.)						
	Residual Unbalance	± 5 mV (Typ.)						
	Combined Non-Linearity, Hysteresis and Repeatability	± 0.1% FSO BFSL (Typ.), ± 0.5% FSO (Max.)						
	Resolution	Infinitesimal						
	Natural Frequency of Sensor Without Screen (KHz) (Typ.)	240	300	380	550	700	1000	1400
ENVIRONMENTAL	Acceleration Sensitivity % FS/g Perpendicular	5.0x10 <sup>-4</sup>	3.0x10 <sup>-4</sup>	1.5x10 <sup>-4</sup>	1.0x10 <sup>-4</sup>	6.0x10 <sup>-5</sup>	4.5x10 <sup>-5</sup>	2.0x10 <sup>-5</sup>
	Insulation Resistance	100 Megohm Min. @ 50 VDC						
	Operating Temperature Range	-320°F to +250°F (-195.5°C to +120°C)						
	Compensated Temperature Range	-300°F to +100°F (-184.4°C to +37.5°C)						
	Thermal Zero Shift	± 1% FS/100°F (Typ.)						
	Thermal Sensitivity Shift	± 1% /100°F (Typ.)						
	Linear Vibration	10-2,000 Hz Sine, 100g. (Max.)						
Mechanical Shock	20g half Sine Wave 11 msec. Duration							
PHYSICAL	Electrical Connection	4 Conductor 30 AWG Shielded Cable 30" Long						
	Weight	12 Grams (Nom.) Excluding Cable						
	Pressure Sensing Principle	Fully Active Four Arm Wheatstone Bridge Dielectrically Isolated Silicon on Silicon Patented Leadless Technology						
	Mounting Torque	50 Inch-Pounds (Max.) 6 Nm						

Note: Custom pressure ranges, accuracies and mechanical configurations available. Dimensions are in inches. Dimensions in parenthesis are in millimeters. All dimensions nominal. (J) 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.



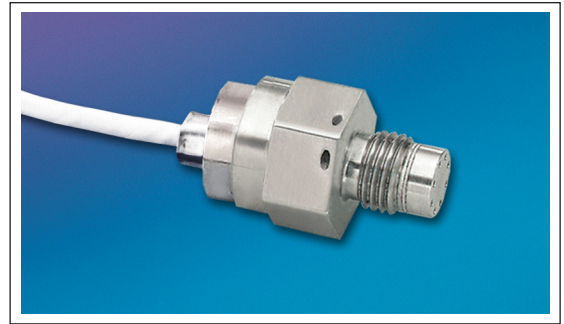
# CRYOGENIC MINIATURE RUGGEDIZED PRESSURE TRANSDUCER

## CTL-375 (M) SERIES

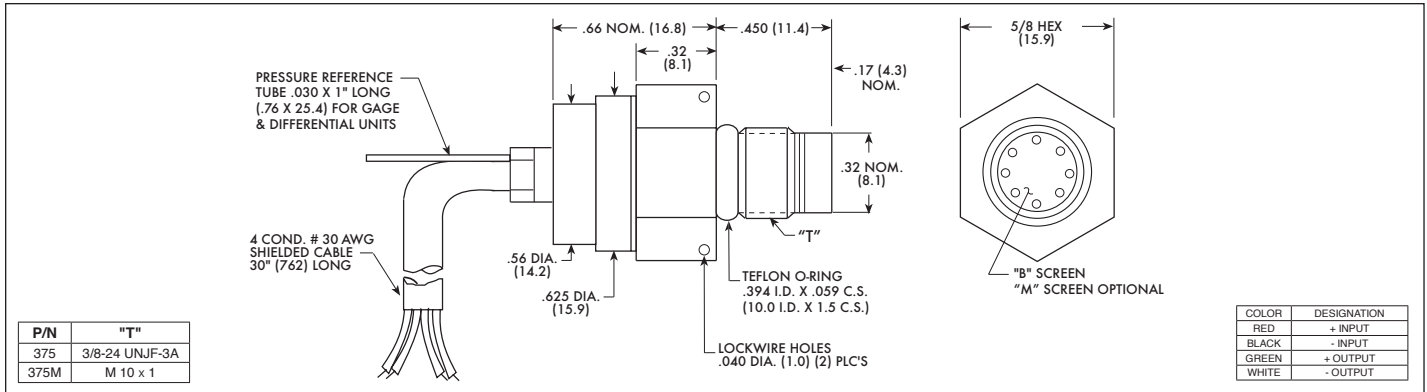
- Cryogenic Operation -320°F to +250°F (-195.5°C to +120°C)
- Low Ranges Available
- Patented Leadless Technology VIS®
- Excellent Stability and Repeatability
- High Frequency Response

Similar in design to the HKL-375 Series, these sensors are specifically intended for use at cryogenic temperature. The extremely good low temperature stability of Kulite Sensors make them ideally suited for this application.

Part performance not guaranteed if used in water.



Kulite recommends the [KSC Series](#) of signal conditioners to maximize the measurement capability of the CTL-375 transducer.



	1.7 25	3.5 50	7 100	17 250	35 500	70 1000	140 BAR 2000 PSI	
INPUT	Pressure Range							
	Operational Mode	Absolute, Gage, Sealed Gage, Differential			Absolute, Sealed Gage			
	Over Pressure	2 Times Rated Pressure to 500 PSI (35 BAR), 1.5 Times Rated Pressure Above 500 PSI (35 BAR)						
	Burst Pressure	3 Times Rated Pressure to a Maximum of 5000 PSI (350 BAR)						
	Pressure Media	Most Conductive Liquids And Gases - Please Consult Factory (All Media May Not Be Suitable With O-Ring Supplied)						
	Rated Electrical Excitation	10 VDC						
	Maximum Electrical Excitation	12 VDC						
	Input Impedance	1000 Ohms (Min.)						
OUTPUT	Output Impedance	1000 Ohms (Nom.)						
	Full Scale Output (FSO)	100 mV (Nom.)						
	Residual Unbalance	± 5 mV (Typ.)						
	Combined Non-Linearity, Hysteresis and Repeatability	± 0.1% FSO BFSL (Typ.), ± 0.5% FSO (Max.)						
	Resolution	Infinitesimal						
	Natural Frequency of Sensor Without Screen (KHz) (Typ.)	240	300	380	550	700	1000	1400
	Acceleration Sensitivity % FS/g Perpendicular	5.0x10 <sup>-4</sup>	3.0x10 <sup>-4</sup>	1.5x10 <sup>-4</sup>	1.0x10 <sup>-4</sup>	6.0x10 <sup>-5</sup>	4.5x10 <sup>-5</sup>	2.0x10 <sup>-5</sup>
	Insulation Resistance	100 Megohm Min. @ 50 VDC						
ENVIRONMENTAL	Operating Temperature Range	-320°F to +250°F (-195.5°C to +120°C)						
	Compensated Temperature Range	-300°F to +100°F (-184.4°C to +37.5°C)						
	Thermal Zero Shift	± 1% FS/100°F (Typ.)						
	Thermal Sensitivity Shift	± 1% /100°F (Typ.)						
	Linear Vibration	10-2,000 Hz Sine, 100g. (Max.)						
Mechanical Shock	20g half Sine Wave 11 msec. Duration							
PHYSICAL	Electrical Connection	4 Conductor 30 AWG Shielded Cable 30" Long						
	Weight	17 Grams (Nom.) Excluding Cable						
	Pressure Sensing Principle	Fully Active Four Arm Wheatstone Bridge Dielectrically Isolated Silicon on Silicon Patented Leadless Technology						
	Mounting Torque	80 Inch-Pounds (Max.) 9 Nm						

Note: Custom pressure ranges, accuracies and mechanical configurations available. Dimensions are in inches. Dimensions in parenthesis are in millimeters. All dimensions nominal. (O) 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.