



ELECTRICAL ISOLATION FOR THE 2255A SERIES

ENDEVCO's 2255A Series ISOTRON® Accelerometers offer unprecedented performance for high frequency, high amplitude measurements. However, the mechanical design which yielded this excellent performance does not provide electrical isolation of the signal return from the case. Because many applications require electrical isolation between the mounting surface and the signal return, some sort of electrically isolated adapter is needed. Four different adapters are available.

The simplest form is an anodized aluminum bushing with internal threads for the accelerometer stud and external threads for fixing the test object (part number 26178). The hard anodized surfaces provide electrical insulation. The ring is inherently strong to withstand high amplitude shocks and rigid to assure flat response to high frequencies. Because of its simple shape, it is relatively inconvenient to install and remove. Many installations and removal cycles may wear through the anodized surface, reducing or eliminating the insulating properties. It also requires a 3/8-32 tapped hole instead of the more common 1/4 inch or 10-32. Therefore, this accessory is ideal where it can be installed permanently, either on the accelerometer or in the structure. As long as one anodized surface is intact, the electrical insulation is maintained. The permanence of installation can be improved by using Loc-Tite or some similar thread-locking adhesive.

Where greater flexibility is required and the mounting adapter must be repeatedly installed and removed, adapter Models 2983M7, M8 or M9 may be used.

Model 2983M7 is simply the 26187 bushing threaded and cemented into a titanium hex body with an integral 1/4-28 threaded stud. Model 2983M8 is identical, except for an M6 metric stud. Since one anodized surface of the ring is protected from wear, electrical insulation is ensured regardless of surface wear. Material and structural characteristics provide overrange capability to 200 Kg and a resonant frequency of about 60 kHz. This provides flat ($\pm 5\%$) frequency to about 12 kHz.

For flat response to a higher frequency (50 kHz+) Model 2983M9 may be used. This is an internally threaded hex body (beryllium for maximum stiffness) with an anodized aluminum stud fixed into the bottom and a ceramic insulating washer cemented on the bottom surface. This adapter is limited to 20 000 g. It is especially useful for frequency response calibrations to high frequencies, or where high frequency motion, below 20 Kg, is to be measured.

All of these adapters, like the 2255A accelerometer, must be properly installed to assure reliable performance, reproducible data, and to avoid damage to the accelerometer and adapter. A thread adhesive such as Loc-Tite, or an epoxy such as Epoxylite 8751, will reduce the probability of threads loosening after cyclic high amplitude shocks or vibration. If no thread adhesive is used, threaded fasteners should be retorqued at frequent intervals (after every high amplitude shock).

The table below summarizes the characteristics of the available insulating adapters:

Part Number	26178	2983M7	2983M8	2983M9
Configuration	Ring	Adapter	Adapter	Adapter
Body Material	Aluminum	Titanium	Titanium	Beryllium
Insulation	Anodized	Anodized	Anodized	Anodized
Stud Thread	3/8-32	1/4-28	M6	1/4-28
Stud Material	N/A	Titanium	Titanium	Aluminum
Frequency, Hz ($\pm 5\%$)	50 K+	12 K	12 K	50 K+
Maximum Shock, g	200 K	200 K	200 K	20 K
Installation:				
Torque, in-lb.	N/A	*	*	20-30
Cycles	Few	Many	Many	Many

* Depends on the material of mounting surfaces



RANCHO VIEJO ROAD · SAN JUAN CAPISTRANO, CA 92675 · TELEPHONE (714) 493-8181

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