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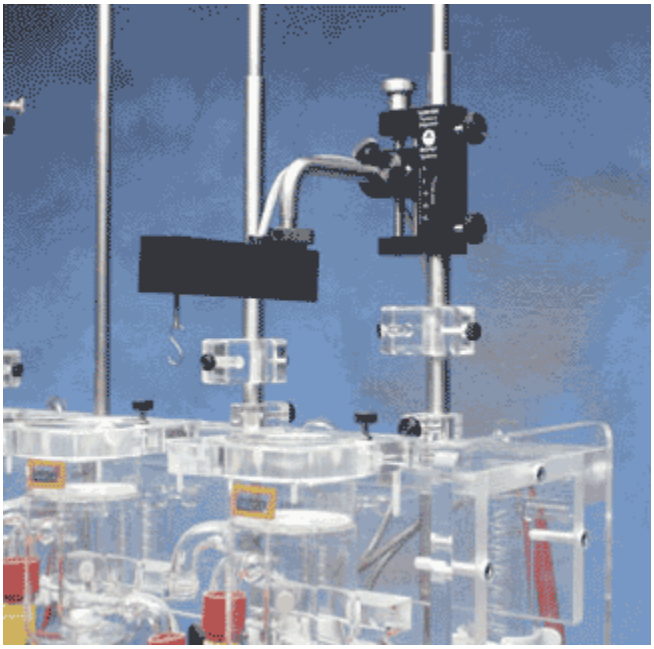
TSD125 SERIES PRECISION FORCE TRANSDUCERS

- TSD125B (20 g)
- TSD125C (50 g)
- TSD125D (100 g)
- TSD125E (200 g)
- TSD125F (500 g)



TSD125 shown with HDW100A

Force transducers are devices capable of transforming a force into a proportional electrical signal. The TSD125 series force transducer elements are cantilever beam load cells incorporating thin-film strain gauges. Because the strain elements have been photolithographically etched directly on the strain beam, these transducers are rugged while maintaining low non-linearity and hysteresis. Drift with time and temperature is also minimized, because the strain elements track extremely well, due to the deposition method and the elements close physical proximity. Forces are transmitted back to the beam via a self-centering pull-pin to insure accurate force measurements. The cantilever beam is mounted in a sealed aluminum enclosure that includes a 3/8” diameter mounting rod for holding the transducer in a large variety of orientations.

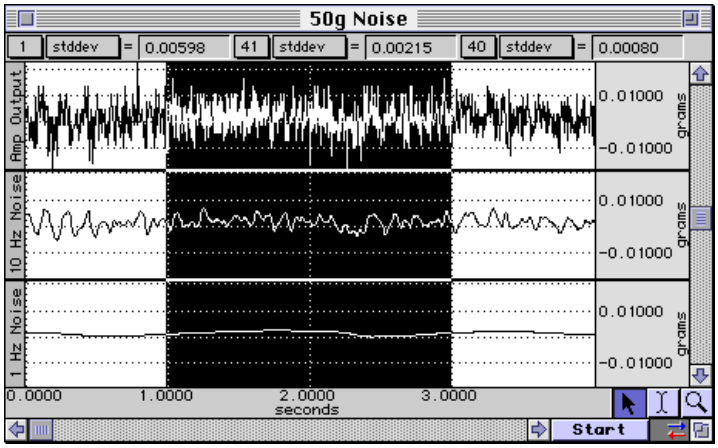
TSD125 SERIES CALIBRATION

The following graphs illustrate actual data taken with the TSD125C (50 gram force transducer) and TSD125F (500 gram force transducer). The force transducers were connected directly to a DA100C amplifier with the excitation set to ±5 Volts. The DA100C gain was set to 1,000. The RMS noise output was determined by calculating the standard deviation of the amplified and calibrated signal over a period of time.

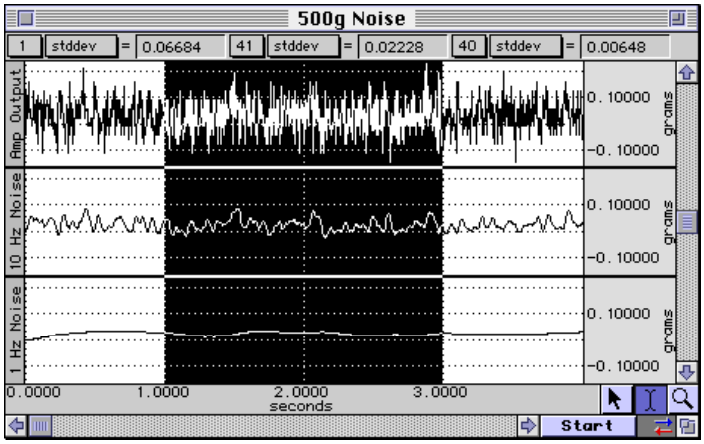
The RMS noise of each force transducer was determined in three different settings.

1) Channel 1 RMS Noise at DA100C output
2) Channel 41 RMS Noise after 10 Hz Low Pass IIR real time filtering
3) Channel 40 RMS Noise after 1Hz Low Pass IIR real time filtering

RMS NOISE PERFORMANCE OF TSD125F FOR DIFFERENT BANDWIDTHS



RMS NOISE PERFORMANCE OF TSD125C FOR DIFFERENT BANDWIDTHS



See also: DA100C Calibration options.

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TSD125 SERIES SPECIFICATIONS

Device	Full Scale Range (FSR)	RMS Noise [10 volts Excitation] 10 Hz	1 Hz
TSD125B:	20 gram	1.0 mg RMS	.04 mg RMS
TSD125C:	50 gram	2.5 mg RMS	1 mg RMS
TSD125D:	100 gram	5 mg RMS	2 mg RMS
TSD125E:	200 gram	10 mg RMS	4 mg RMS
TSD125F:	500 gram	25 mg RMS	10 mg RMS

Nonlinearity:	<±0.025% FSR
Hysteresis:	<±0.05% FSR
Nonrepeatability:	<±0.05% FSR
30-Minute Creep:	<±0.05% FSR
Temperature Range:	-10°C to 70°C
Thermal Zero Shift:	<±0.03% FSR/°C
Thermal Range Shift:	<0.03% Reading/°C
Maximum Excitation:	10 VDC
Full Scale Output:	1mV/V (normalized to 1V excitation)
Weight:	250 grams
Dimensions:	100mm (long) x 19mm (wide) x 25mm (high)
Mounting Rod:	9.5mm (dia) – variable orientation
Cable Length:	3 meters
Interface:	DA100C