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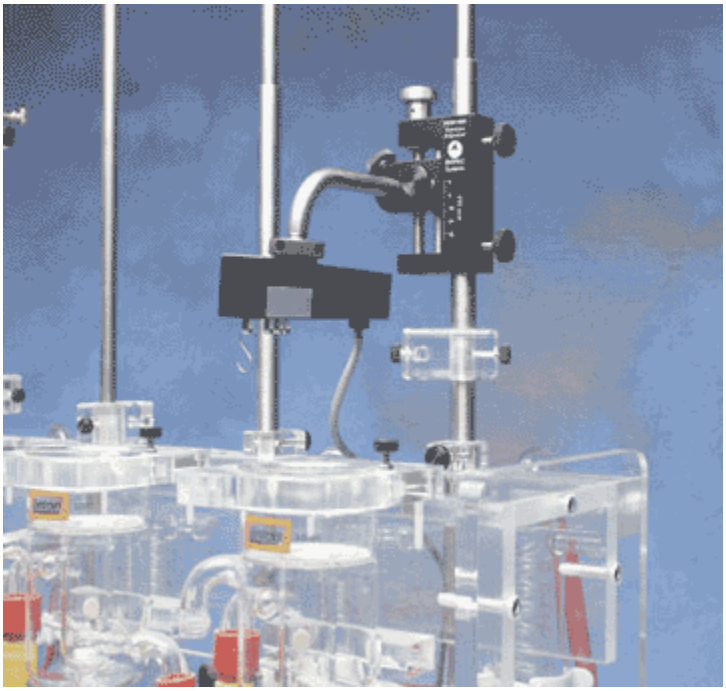
TSD105A ADJUSTABLE FORCE TRANSDUCER



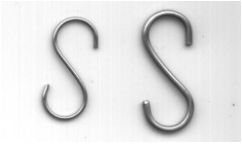
TSD105A shown with HDW100A

Force transducers are devices capable of transforming a force into a proportional electrical signal. The TSD105A force transducer element is a cantilever beam load cell incorporating a thin-film strain gauge. 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. The TSD105A also incorporates impact and drop shock protection to insure against rough laboratory handling.

Forces are transmitted back to the beam via a lever arm to insure accurate force measurements. Changing the attachment point changes the full scale range of the force transducer from 50 g to 1000 g. The beam and lever arm are mounted in a sealed aluminum enclosure that includes a 3/8" diameter mounting rod for holding the transducer in a large variety of orientations. The TSD105A comes equipped with a 2-meter cable and plugs directly into the DA100C amplifier.

The TSD105A mounting rod can be screwed into the transducer body in three different locations, two on the top and one on the end surfaces of the transducer. The mounting rod can be placed in any angle relative to the transducer orientation. The TSD105A can be used in any axis and can be easily mounted in any standard measurement fixture, including pharmacological setups, muscle tissue baths and organ chambers.

The TSD105A has 5 different attachment points that determine the effective range of the force transducer. These ranges are 50 g, 100 g, 200 g, 500 g and 1,000 g. The point closest to the end is the 50 g attachment point, while the point closest to the middle is the 1,000 g attachment point.



Two hooks are provided with the TSD105A. One with a .051" diameter wire and the other with a .032" diameter wire. The larger hook is intended for the 500 g and 1000 g ranges and the smaller hook is to be used for the 50 g, 100 g and 200 g ranges.

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TSD105A CALIBRATION

The TSD105A is easily calibrated using weights of known mass. Ideally, calibration should be performed with weights that encompass the range of the forces expected during measurement and should cover at least 20% of the full scale range of the transducer. When calibrating for maximum range on the force transducer, use weights that correspond to 10% and 90% of the full scale range for best overall performance.

See also: DA100C Calibration options.

TSD105A SPECIFICATIONS

Rated Output:	1 mV/V (normalized to 1 V excitation)
Ranges:	50, 100, 200, 500, 1000 grams
Noise (rms):	(Range/50) mg @ 10 volts excitation, 1 Hz bandwidth
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
Mounting Rod:	9.5 mm (dia) – variable orientation
Weight:	300 g (with mounting rod)
Length:	19 mm (wide), 25 mm (thick), 190 mm (long)
Cable Length:	3 meters
Interface:	DA100C