

Product Advantages

One of the Smallest 6-Axis Sensors in the World: The Nano25 fits into restricted spaces of research applications.

Extremely High Strength:

- EDM wire-cut from high-yield strength stainless steel.
- Maximum allowable single-axis overload values are 7.1 to 15 times rated capacities.

High Signal-to-Noise Ratio: Silicon strain gages provide a signal 75 times stronger than conventional foil gages. This signal is amplified, resulting in near-zero noise distortion.

IP65 and IP68 (4m) Versions Available: The IP65 version of the transducer is available for use in wet environments. The IP68 version is for underwater environments to a maximum depth of 4 meters in fresh water. Contact ATI Industrial Automation for drawings and more information.



The Nano25 F/T transducer

The transducer is made of hardened stainless steel with integral interface plates made from high-strength stainless steel.

Typical Applications

- Telerobotics
- Robotic surgery
- Robotic hand research
- Finger-force research

ENGLISH CALIBRATIONS	SENSING RANGES		Calibrations			
	Axes		US-25-25		US-50-50	
	Fx, Fy (\pm lbf)		25		50	
	Fz (\pm lbf)		100		200	
	Tx, Ty (\pm lbf-in)		25		50	
	Tz (\pm lbf-in)		25		30	
	RESOLUTION		System Type*			
	Axes		CTL		Net/DAQ	
	Fx, Fy (lbf)		1/112		1/224	
	Fz (lbf)		3/112		3/224	
Tx, Ty (lbf-in)		1/80		1/160		
Tz (lbf-in)		1/160		1/320		

METRIC CALIBRATIONS	SENSING RANGES		Calibrations			
	Axes		SI-125-3		SI-250-6	
	Fx, Fy (\pm N)		125		250	
	Fz (\pm N)		500		1000	
	Tx, Ty (\pm Nm)		3		6	
	Tz (\pm Nm)		3		3.4	
	RESOLUTION		System Type*			
	Axes		CTL		Net/DAQ	
	Fx, Fy (N)		1/24		1/48	
	Fz (N)		1/8		1/16	
Tx, Ty (Nm)		1/660		1/1320		
Tz (Nm)		1/1320		1/2640		

*CTL: Controller F/T System; Net: Net F/T System; DAQ: 16-bit DAQ F/T System. The resolution is typical for most applications and can be improved with filtering. Resolutions quoted are the effective resolution after dropping four counts of noise (Net/DAQ) or eight counts of noise (CTL). All sensors calibrated by ATI. **Applied loads must be within range in each of the six axes for the F/T sensor to measure correctly** (refer to the transducer manual for complex loading information).

Single-Axis Overload	English	Metric
Fxy	±520 lbf	±2300 N
Fz	±1600 lbf	±7300 N
Txy	±380 lbf-in	±43 Nm
Tz	±560 lbf-in	±63 Nm
Stiffness (Calculated)	English	Metric
X-axis & Y-axis force (Kx, Ky)	3.0x10 ⁵ lb/in	5.3x10 ⁷ N/m
Z-axis force (Kz)	6.3x10 ⁵ lb/in	1.1x10 ⁸ N/m
X-axis & Y-axis torque (Ktx, Kty)	5.7x10 ⁴ lbf-in/rad	6.5x10 ³ Nm/rad
Z-axis torque (Ktz)	8.1x10 ⁴ lbf-in/rad	9.2x10 ³ Nm/rad
Resonant Frequency (Non-IP rated, Measured)		
Fx, Fy, Tz	3600 Hz	
Fz, Tx, Ty	3800 Hz	
Physical Specifications	English	Metric
Weight*	0.14 lb	0.0634 kg
Diameter*	0.984 in	25 mm
Height*	0.85 in	21.6 mm

“The forcetorque systems from ATI are ideal in our study of human grip force coordination and production. They are as close to a turn-key system as we have found.”

Professor Jay L. Alberts
Dept. of Exercise Science
and Physical Education
Arizona State University

Note:
Applying moments beyond ±30 lbf-in (±3.4 Nm) in Tz can cause hysteresis and permanent zero-point change in the Nano25.

*Specifications are for non-IP rated models. Diameter excludes any connector or cable features.

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NANO25

Notes:

1. Mounting Adapter, Tool Adapter, and transducer made of Stainless Steel.
2. **WARNING: DO NOT LOOSEN OR REMOVE INTERFACE PLATES OR CABLE FITTING DUE TO POTENTIAL DAMAGE.**
3. **DO NOT EXCEED INTERFACE DEPTH, MAY CAUSE DAMAGE.**
4. Connector (not shown) has 17mm diameter and is 67.5mm long.

Customer Drawing # 9230-05-1083-13