Product Advantages

Extremely High Strength:

- EDM wire-cut from high yield-strength stainless steel.
- Maximum allowable single-axis overload values are 4.8 to 19.9 times rated capacities.
- Through-hole available in some cases.

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.

IP60, IP65 and IP68 (10m) Versions Available: An IP60 version is for use in dusty environments. The IP65 version of the transducer provides protection against water spray. The IP68 version is for underwater environments to a maximum depth of 10 meters in fresh water. Contact ATI Industrial Automation for drawings and more information.

The Omega190 F/T transducer
The transducer is made of hardened stainless steel, and the tool and mounting adapters are made of high-strength aircraft aluminum.

Typical Applications

- Product testing
- Force feedback
- Telerobotics
- Part placement and removal in precision fixtures
- Friction stir welding

English Calibrations

SENSING RANGES	Calibrations					
Axes	US-400-3000		US-800-6000		US-1600-12000	
Fx, Fy (±lbf)	400		800		1600	
Fz (±lbf)	1000		2000		4000	
Tx, Ty (±lbf-in)	3000		6000		12000	
Tz (±lbf-in)	3000		6000		12000	
RESOLUTION	System Type*					
Axes	CTL	Net/DAQ	CTL	Net/DAQ	CTL	Net/DAQ
Fx, Fy (lbf)	5/32	5/64	5/16	5/32	5/8	5/16
Fz (lbf)	5/16	5/32	5/8	5/16	1 1/4	5/8
Tx, Ty (lbf-in)	15/16	15/32	1 7/8	15/16	3 3/4	1 7/8
Tz (lbf-in)	5/8	5/16	1 1/4	5/8	2 1/2	1 1/4

Metric Calibrations

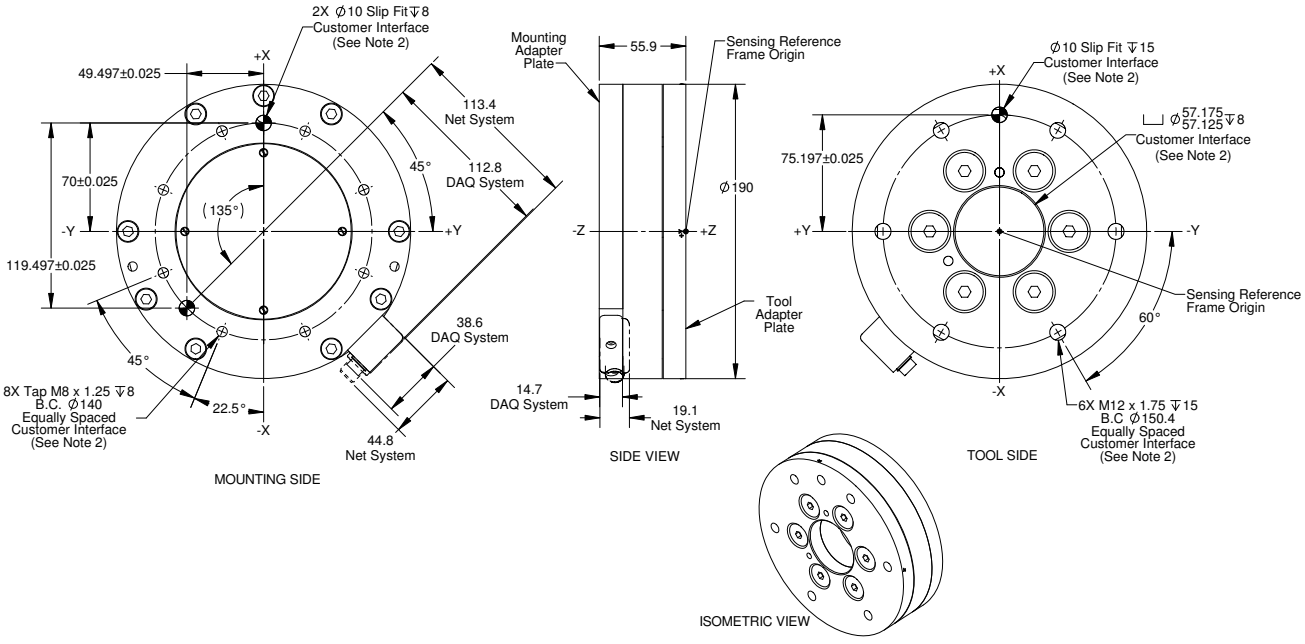
SENSING RANGES	Calibrations					
Axes	SI-1800-350		SI-3600-700		SI-7200-1400	
Fx, Fy (±N)	1800		3600		7200	
Fz (±N)	4500		9000		18000	
Tx, Ty (±Nm)	350		700		1400	
Tz (±Nm)	350		700		1400	
RESOLUTION	System Type*					
Axes	CTL	Net/DAQ	CTL	Net/DAQ	CTL	Net/DAQ
Fx, Fy (N)	3/4	3/8	1 1/2	3/4	3	1 1/2
Fz (N)	1 1/2	3/4	3	1 1/2	6	3
Tx, Ty (Nm)	5/48	5/96	5/24	5/48	5/12	5/24
Tz (Nm)	5/72	5/144	5/36	5/72	5/18	5/36

*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	±8000 lbf	±36000 N
Fz	±25000 lbf	±110000 N
Txy	±60000 lbf-in	±6800 Nm
Tz	±60000 lbf-in	±6800 Nm
Stiffness (Calculated)	**English**	**Metric**
X-axis & Y-axis force (Kx, Ky)	$1.4x10^6$ lb/in	$2.4x10^8$ N/m
Z-axis force (Kz)	$2.1x10^6$ lb/in	$3.6x10^8$ N/m
X-axis & Y-axis torque (Ktx, Kty)	$1.4x10^7$ lbf-in/rad	$1.5x10^6$ Nm/rad
Z-axis torque (Ktz)	$2.8x10^7$ lbf-in/rad	$3.2x10^6$ Nm/rad
Physical Specifications	**English**	**Metric**
Weight*	14 lb	6.35 kg
Diameter (OD,ID)*	7.48 in, 2.25 in	190 mm, 57 mm
Height*	2.20 in	55.9 mm

*Specifications include standard interface plates and are for non-IP rated models.
Diameter excludes any connector block.

OMEGA190



Notes:

1. Material: Hardened Stainless Steel and Aluminum
2. **DO NOT EXCEED INTERFACE DEPTH, MAY CAUSE DAMAGE.**
3. Do not disassemble transducer. Doing so could damage transducer and will void the warranty.
4. For best accuracy transducer must be mounted to surface rigid enough to support loads without deflection.

Customer Drawing # 9230-05-1095-15