

Robotic Application Worksheet - Force/Torque (F/T) Sensors

Instructions

Please email your completed application worksheet to: FTSupport@ati-ia.com or fax to 919-772-8259

When completing the worksheet, please fill-in as much information as possible about your application. The information that you provide will help our application engineers select the most suitable F/T system configuration for your application.

Customer Information

Name:	
Phone:	
Email:	
Company:	
Address:	

Application Description and Images

Please provide a brief, general description of your application. If possible, we encourage you to share any relevant images and/or diagrams to help clarify the application. Please submit these files via email with your completed form.

Robot Information

Robot Brand:	
Robot Model:	
Robot Capacity:	
Mounting Flange Spec:	
Max. Operating Acceleration*:	

*Robot running at: 1: 25-50% of max, 2: 50-75% of max, or 3: 75-100% of max)

Controller Information

This is the device that the sensor will be directly connected to.

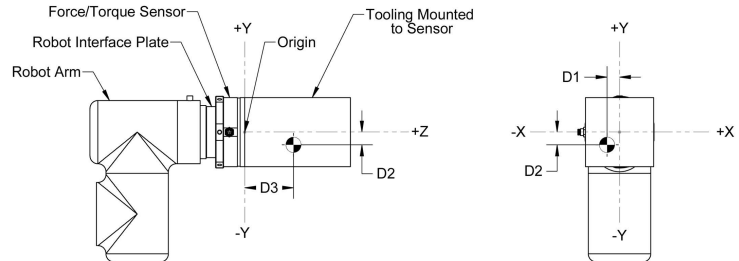
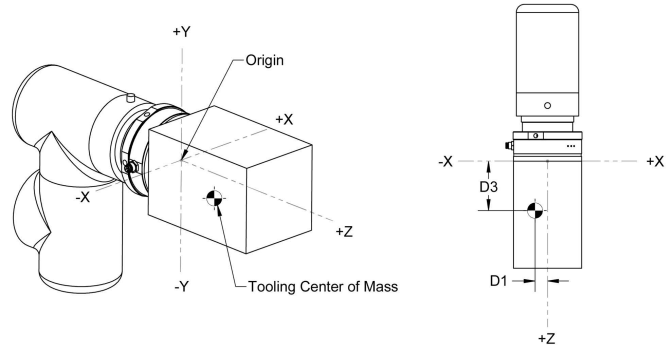
Controller Brand:	
Controller Model:	
Preferred F/T Measurement Signal Output:	
Preferred F/T Measurement Signal Protocol:	

Measurement Data

How do you intend to use the F/T measurement data? Please mark all that apply.	Measure process loads	
	Weight parts/payload	
	Continuously monitor payload	
	Surface detection / locating	
	Precision feature alignment	
Other:		

Force Control

Do you intend to use F/T sensor signals to dynamically control the robot's movements? If yes, please specify which force control software package you intend to use.	
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Application Details

Variable	Units	User Requirements	Description
Tooling + Payload Mass	EOAT Mass	kg	
	Payload Mass	kg	
CG Offsets	X-axis: (D1)	mm	Mass and Center of Mass (CoM) offsets for the End of Arm Tooling (EOAT) and any additional payload. This information will be used to determine the maximum loads (Forces and Torques) that will be applied to the F/T transducer.
	Y-axis: (D2)	mm	
	Z-axis: (D3)	mm	
Max Operation Forces	Fx	N	Maximum operation loads (forces and torques) that will be exerted on the F/T sensor. Please note, these may be higher than your maximum measurement loads (see below).
	Fy	N	
	Fz	N	
Max Operation Torques	Tx	Nm	***Note: The maximum operation loads will most commonly occur when a robot is rapidly moving a tool or payload when transitioning between operations. The maximum operation loads are important for correctly sizing a sensor to prevent overload conditions that may result in permanent damage.
	Ty	Nm	
	Tz	Nm	
Max Measurement Forces	Fx	N	Maximum measurement loads (forces and torques) that you wish to measure during a process or operation. Please note, this may differ from your maximum operation loads (see above).
	Fy	N	
	Fz	N	
Max Measurement Torques	Tx	Nm	
	Ty	Nm	
	Tz	Nm	

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Sensor Performance

Variable		Units	User Requirements	Description
Force Resolution	Fx	N		Resolution is the smallest change in force and torque values that you wish to be able to measure. In other words, this is how "sensitive" the transducer is. Please specify values on a per-axis basis as needed.
	Fy	N		
	Fz	N		
Torque Resolution	Tx	Nm		Example: A resolution requirement of 0.1 N would mean that your application needs to be able to detect a change of ± 0.1 N from a steady-state condition. Typically, sensors calibrated to support larger load ranges will be less sensitive than a similar model that is calibrated for a smaller load range.
	Ty	Nm		
	Tz	Nm		
Force Accuracy	Fx	N		Accuracy requirement for forces and torques that you wish to measure. Please specify values on a per-axis basis as needed.
	Fy	N		
	Fz	N		
Torque Accuracy	Tx	Nm		Example: An accuracy requirement of ± 2 N would mean that your application needs to be able to confidently measure the true value of an applied load to within ± 2 N of the actual value. For instance, if you were using a sensor with an accuracy rating of ± 2 N and applied a true load of 100 N along that axis, then measurement values could fall within a range of 98 N - 102 N, otherwise written as 100 N ± 2 N.
	Ty	Nm		
	Tz	Nm		

Environment & Sensor Features

Variable	Units	User Requirements	Description
Max. Ambient Operating Temperature	°C		Please specify the maximum and/or minimum operating temperatures that the sensor will see.
Min. Ambient Operating Temperature	°C		
Nearby Thermal Sources	-		Please specify any nearby sources of thermal energy/heat that could affect the sensor's temperature. Example: Electric motors, welding torches, heating/cooling processes, etc...
Ingress Protection (IP-Rating) IP60 - Dust IP65 - Dust / Fresh Water Spray IP68 - Dust / Fresh Water Immersion	IPXX		Optional environmental protection for the transducer body. IP-rated variants may have additional components and/or varied geometry from the non-IP-rated version of the sensor. Please see the F/T Model Listing on the ATI website for model-specific drawings and documentation: https://www.ati-ia.com/products/ft/ft_ModelListing.aspx
Sensor Outer Diameter	mm		Minimum or maximum geometric and mass restrictions for the cylindrical transducer body. Please see the F/T Model Listing on the ATI website for model-specific drawings and documentation: https://www.ati-ia.com/products/ft/ft_ModelListing.aspx
Sensor Height	mm		
Sensor Mass	kg		
Sensor Cable Length	m		If applicable, please specify your preferred sensor cable length.

Please provide any additional comments or questions below.