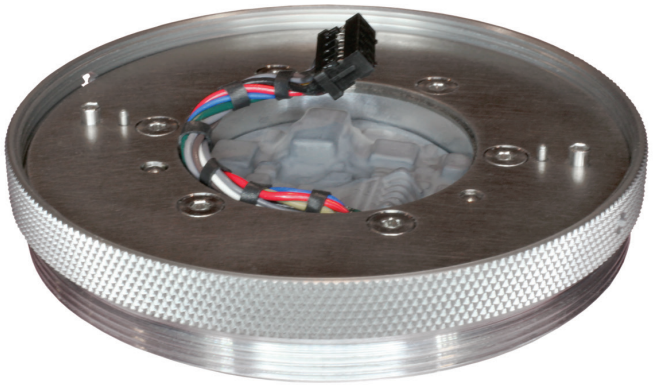
Barrett Technology™ Inc.

datasheet

F/T Sensor

Entirely Self-Contained
Thin: 12 mm
Light: 136 g

Barrett's fully-integrated, 6-Axis Force/Torque Sensor attaches directly to any compatible WAM™ Arm or BarrettHand™



Self-Contained, Low-Profile Sensing

The Barrett 6-Axis Force/Torque Sensor is a completely self-contained sensing package that expands the force sensing capability of WAM™ and BarrettHand™ systems.

The Force/Torque Sensor is available as an option when purchasing a WAM Arm or BarrettHand. The base of the sensor attaches to the tool plate of the WAM Arm (4-DOF and 7-DOF)* and the top plate of the sensor attaches to the base of the BarrettHand 28X series.

As with the BarrettPuck,™ the Force/Torque Sensor is an entirely self-contained unit. There is no need for an external cable or large controller unit; all of the necessary amplification and processing electronics are built into one of the industry's thinnest packages. With the calibration data preloaded into the sensor's non-volatile memory, the onboard 32-bit DSP processes signals from all the strain gages and outputs 3 forces and 3 torques. All that is needed to start taking measurements are Barrett's standard internal 48-V power and CANbus communications.

Manufactured from precision machined high-strength aircraft aluminum (7075-T6) and grade 5 titanium, the package is light and strong. Bonded silicon strain gages (up to 75 times more sensitive than foil gages) enable force-sensing resolutions of less than 10 grams while maintaining a maximum overload limit that is 20 times the operating range.

* WAM arm S/N 63 and above

Specification – part #B4066		*Value*
Total Mass		**136 g**
Dimensions	**Diameter**	**90 mm**
	Height	**12 mm**
Sensing Range	**Fx, Fy**	**± 80 N**
	Fz	**± 135 N**
	Tx, Ty	**± 2.75 N-m**
	Tz	**± 2.75 N-m**
Sensing Resolution	**Fx, Fy**	**50 mN**
	Fz	**80 mN**
	Tx, Ty	**1.5 mN-m**
	Tz	**1.5 mN-m**
Single-Axis Overload	**Fx, Fy**	**3000 N**
	Fz	**3600 N**
	Tx, Ty	**60 N-m**
	Tz	**100 N-m**
Input Voltage*	**Typ**	**48 V**
Power Requirement	**Typ**	**1.7 W**
Communication	**Mode**	**CANbus**
Output Resolution	**Each axis**	**12 bits**
Noise (without filtering)	**Typ**	**2 bits**
Update Rate	**Max freq.**	**2.5 kHz**
Hysteresis	**Typ**	**<5%**

*Inquire regarding other input voltages.

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Features

- No external controller required
- Onboard amplification and processing
- Low power consumption
- Preloaded calibration
- Designed to seamlessly integrate with the WAM Arm and BarrettHand
- Built-in tare function
- Precision machined from high-strength aircraft aluminum (7075-T6) and titanium (grade 5)
- Silicon strain gages provide a signal that is 75 times stronger than foil gages
- Low profile height
- Light weight
- Maximum overload values are over 20 times rated capacity
- Mounts in minutes
- No external wires or cables
- Passes through power, CANbus, and 4 user lines
- 4-wire bus (2 power, 2 CAN)
- 32-bit digital signal processor