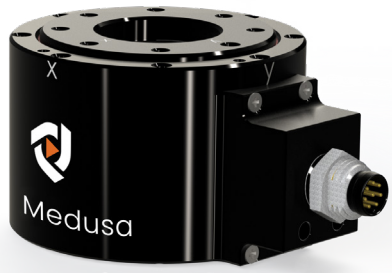
Key Features and Benefits

- Plug + Play
- 10 mN resolution
- Up to 1000 Hz sampling rate
- All-in-One design
- Dustproof and water-resistant
- Negligible temperature drift
- Compatible with ROS, LabVIEW, and MATLAB®



Technical Specifications

Please refer to the table for all sensor specifications. For additional information about the sensor, we recommend speaking with one of our engineers by contacting info@botasys.com.

Medusa Force/Torque Sensor

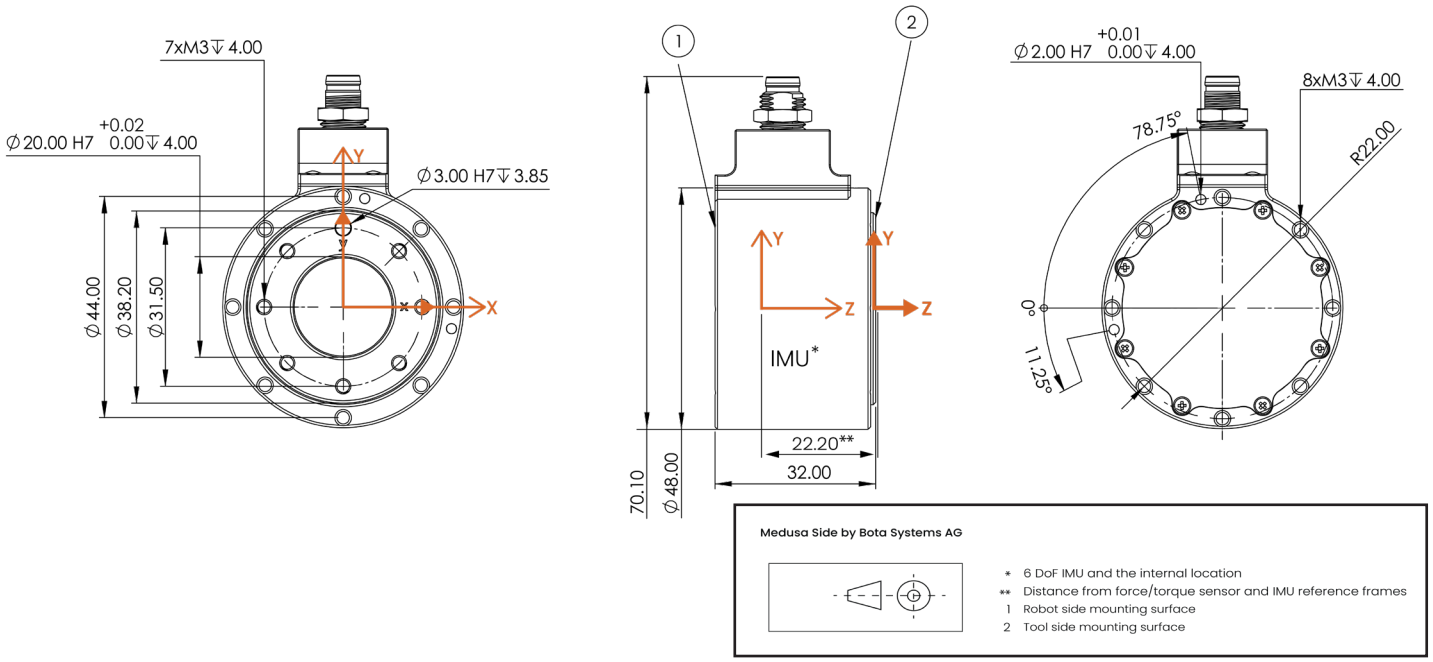
	Fxy	Fz	Mxy	Mz
Range	200 N	500 N	5 Nm	5 Nm
Overload	1000 N	2000 N	12 Nm	15 Nm
Noise Free Resolution*	0.03 N	0.01 N	0.0004 Nm	0.0001 Nm
Weight	~110 grams			
Size (D x L)	48 x 32 mm			
Ingress Protection	dustproof and water-resistant			
Operating Temperature	0° – 55° C			

	Serial	EtherCAT
Communication	USB, RS422	CANopen over EtherCAT
Maximum Sampling Rate	800 Hz	1000 Hz
IMU	--	6 DoF IMU
Acceleration	--	±2g, 4g, 8g, 16g
Gyroscope	--	±250°/sec, ±500°/sec, ±1000°/sec, ±2000°/sec
Power Supply	5 V, 1.0 W	9 – 70 V, 1.5 W

* We define noise-free resolution as the peak-to-peak noise (6σ) of a signal with no load in a stable environment. The signal's samples are obtained at a frequency of 100 Hz.

Mechanical Dimensions

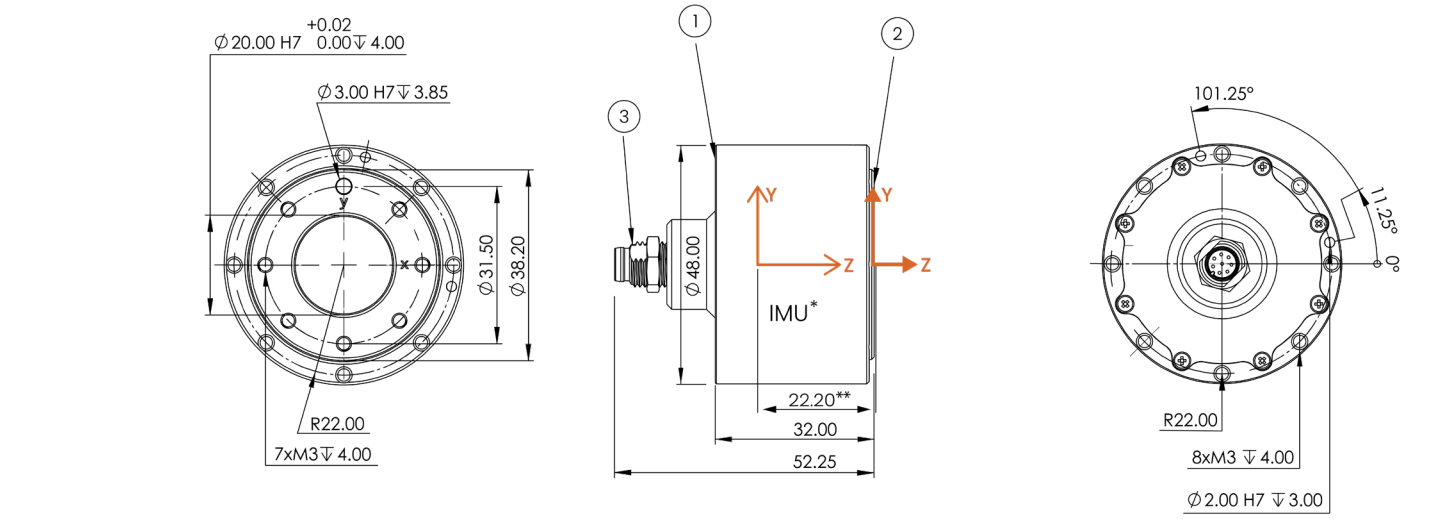
Side Connector Configuration



Medusa Side by Bota Systems AG

* 6 DoF IMU and the internal location
** Distance from force/torque sensor and IMU reference frames
1 Robot side mounting surface
2 Tool side mounting surface

Axial Connector Configuration



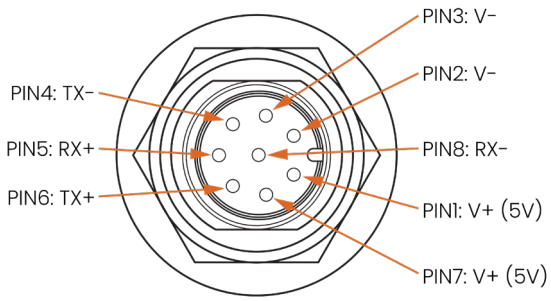
Medusa Axial by Bota Systems AG

* 6 DoF IMU and the internal location
** Distance from force/torque sensor and IMU reference frames
1 Robot side mounting surface
2 Tool side mounting surface
3 M8 IP67 connector

Connector Pinout

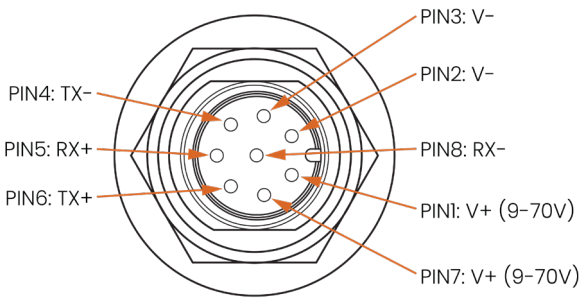
Serial

IP67 M8 Connector Pinout



EtherCAT

IP67 M8 Connector Pinout



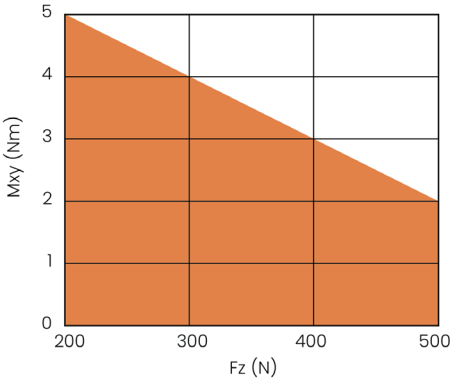
Combined Loading Graphs

During single-axis loading, the sensor can operate up to its normal range. Above the sensor's normal range, the readings become inaccurate. The sensor should not work outside of its normal operating range.

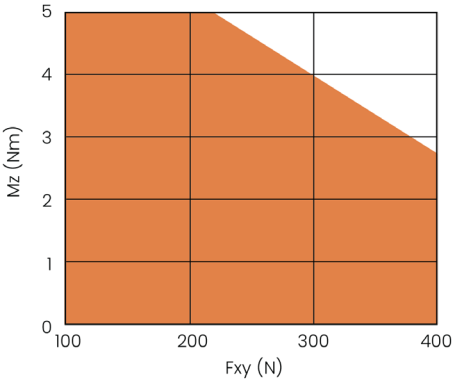
When more than one axis is loaded, it becomes a combined loading, and the range of the sensor reduces.

The following graphs represent the combined loading scenarios, and the orange area represents the sensor's normal operating range.

Mxy, Fz



Mz, Fxy



Mxy, Fxy