Key Features and Benefits

- Plug + Play
- All-in-One design
- ISO 9409-1-50-4-M6 mounting
- Integrated IMU [with EtherCAT]
- 5x Overload protection
- 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.

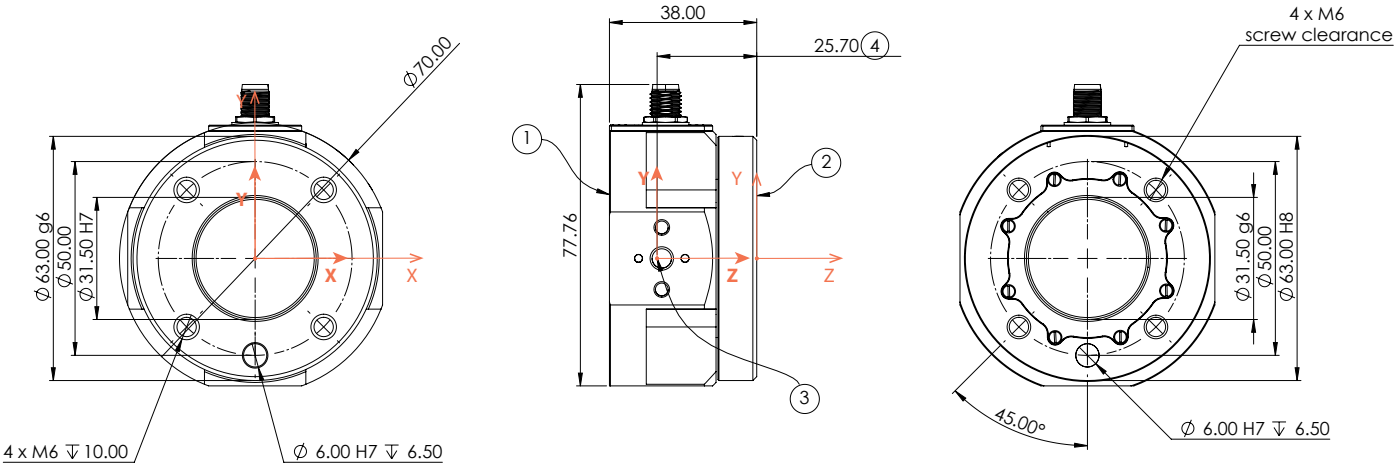
SensONE Force/Torque Sensor

	F_x, F_y	F_z	M_x, M_y	M_z
Range	500 N	1200 N	15 Nm	12 Nm
Overload	2500 N	4500 N	35 Nm	40 Nm
Noise Free Resolution*	0.3 N	0.3 N	0.007 Nm	0.0025 Nm
Size (D x L)	70 mm x 35 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	
Weight	~211 grams		~220 grams	

* We define noise-free resolution as the peak-to-peiak 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



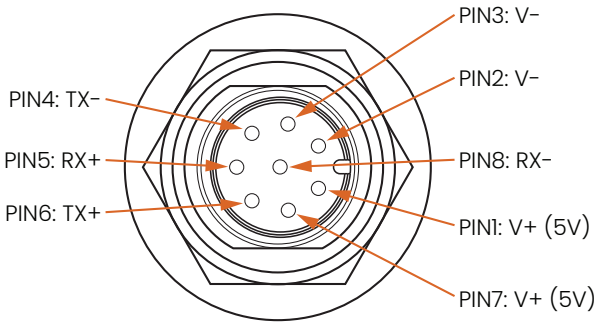
SenseONE by Bota Systems AG

1. Robot mounting side
2. Tool mounting side
3. 6 DoF IMU location
4. Distance between IMU and force/torque sensor coordinate systems

Connector Pinout

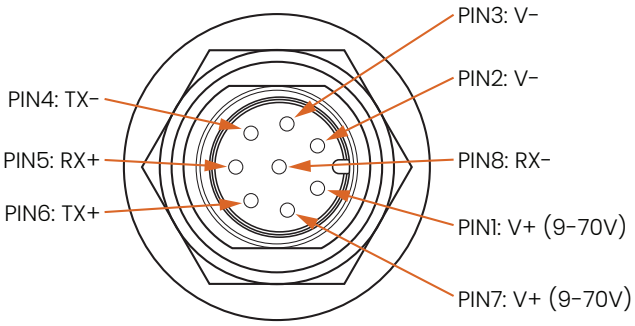
Serial

IP67 M8 Connector Pinout



EtherCAT

IP67 M8 Connector Pinout

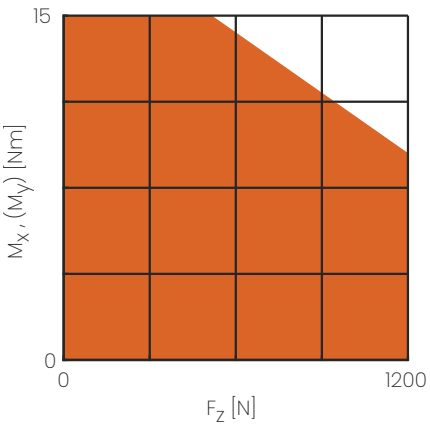


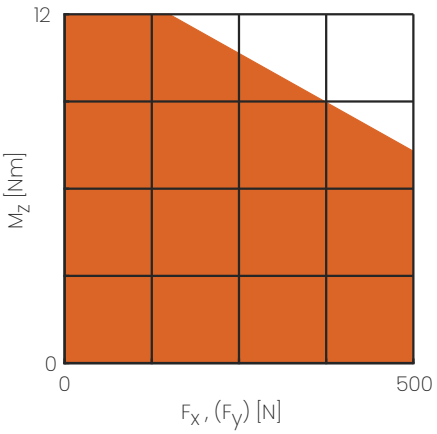
Combined Loading Graphs

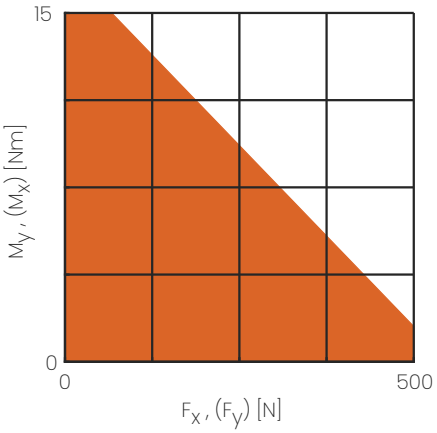
During single-axis loading, the sensor can operate up to its normal range. Above the sensor's normal range, the readings become inaccurate. The sensor should not work outside of its normal operating range.

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.







For more information, please refer to the user manual.