

3-Axis FORCE Sensor

OMD-10-SE-10N

Description:

OptoForce 3D sensors measure the magnitude and the direction of F_x , F_y , and F_z forces based purely on **optical principles**. Depending on the application, **semi-spherical** and **flat top** versions are available. We advise these sensors for low budget research programs and for measurements where torque sensing is unnecessary. Semi-spherical sensors are ideal as sensitive **fingertips** for humanoid robot hands, industrial **grippers**, harvesting robots, and due to its **high durability** there are various applications in the field of **medical robotics** (rehabilitation) and **advanced robotics** (e.g. exoskeletons) as well.

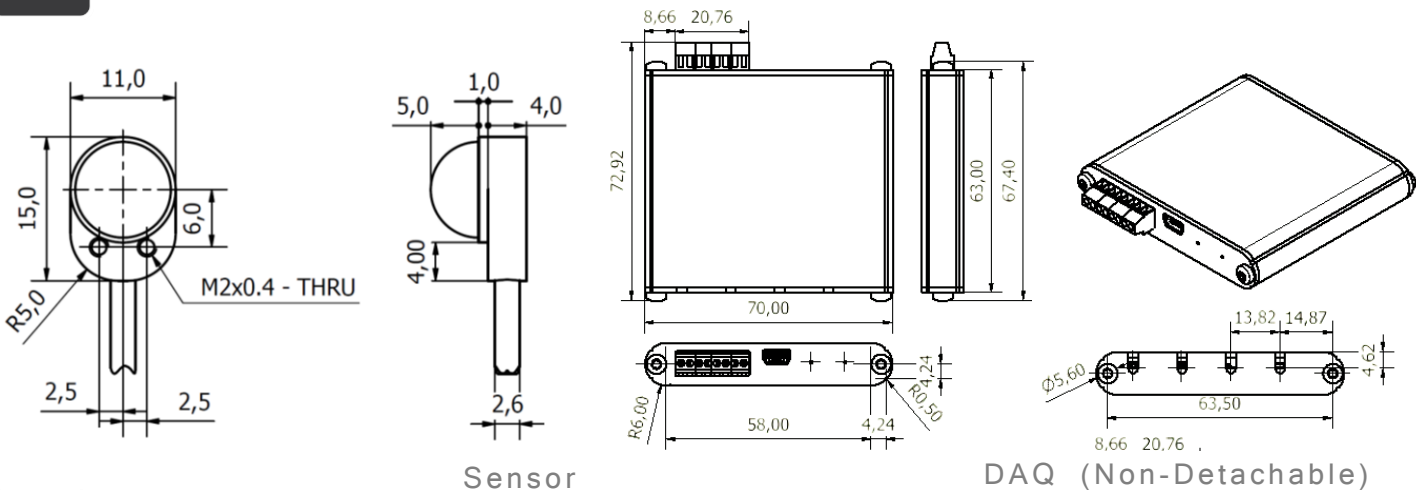
Benefits:

- Multi axis force measurement
- High resolution
- Highly adaptable product design
- Dust and water proof (IP65)
- High overload range
- Mechanical shock resistant
- Cost efficient solution
- Easy integration

	Nominal Capacity	Typical Deformation
F_{xy}	± 2.5 N	± 1 mm
F_z – compression	10 N	1.1 mm

*: For F/T sensing kindly see our 6 axis datasheets





Sensor

DAQ (Non-Detachable)

SPECIFICATIONS

Sensor Type	3 Axis Force Sensor	
Dimensions	Height x width x length	
		10 x 11 x 15 mm
Weight	With 1 m cable (without)	
		11.7 g (1.5 g)
	Fz Compression	Fxy
Nominal Capacity (N.C)	10 N	2.5 N
Single axis overload	300 %	200 %
Full scale nonlinearity	2 %	5 %
Resolution	2.5 mN	± 2.5 mN
Single axis deformation at N.C	0.8 mm	± 1 mm
Crosstalk (typical)	<5 %	
Hysteresis (measured on Fz axis, typical)	< 2 %	
Working temperature range	-40 °C - +80 °C	
Power requirement	In continuous operation	
		10 mA

The semi-spherical sensors are only calibrated in Z+ direction
Parameters were measured at room temperature.

INTERFACE TYPES

USB	CAN	UART	Ethernet TCP/UDP
Maximum sampling frequency 1000 Hz			
Supported systems Windows; Linux; ROS; UR			

