

3-Axis FORCE Sensor

OMD-20-FE-200N

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.

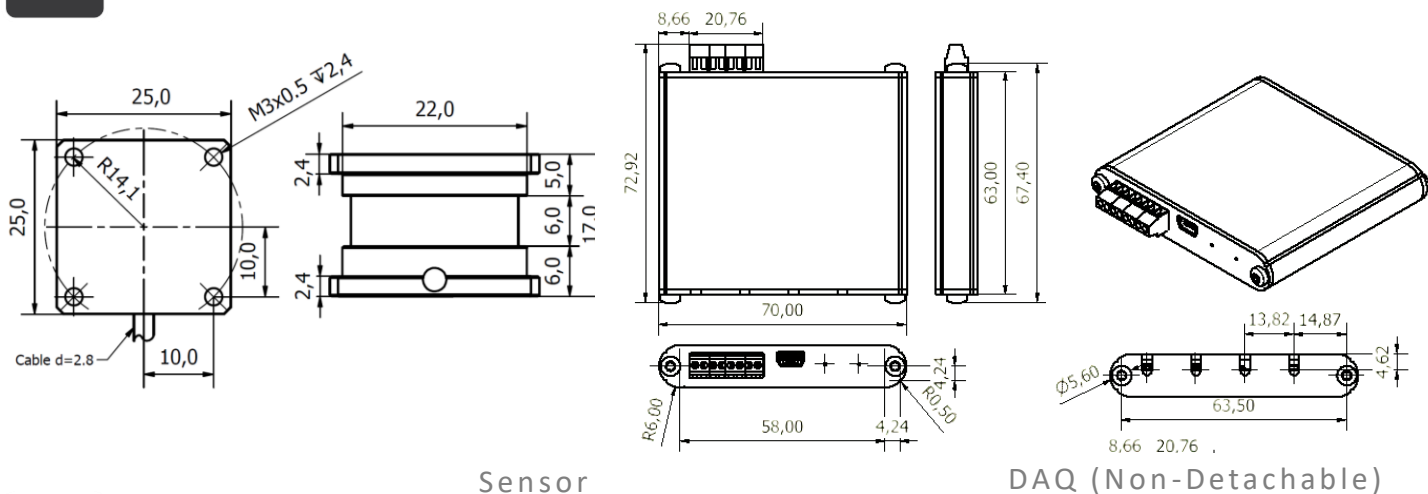
Benefits:

- 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}	± 20 N	± 1.5 mm
F_z – compression	200 N	1.2 mm
F_z – tension	100 N	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		17 x 25 x 25 mm
Weight	With 1 m cable (without)		23 g (14 g)
	Fz Compression	Fz Tension	Fxy
Nominal Capacity (N.C)	200 N	100 N	20 N
Single axis overload	200 %	200 %	200 %
Full scale nonlinearity	2 %	2 %	2 %
Resolution	12.5 mN	12.5 mN	2.1 mN
Single axis deformation at N.C	1.2 mm	1 mm	±1.5 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

INTERFACE TYPES

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