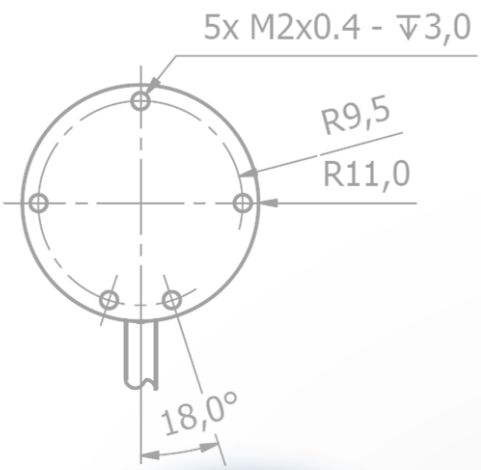
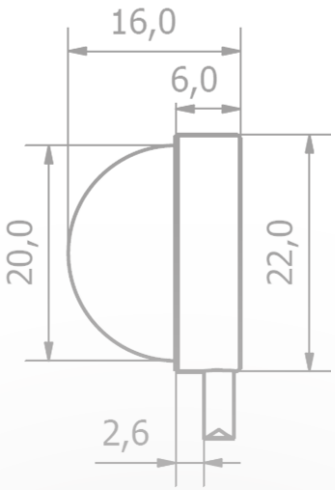
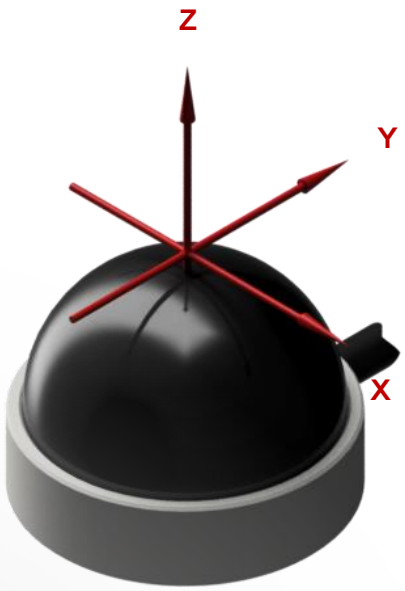
OPTOFORCE
SENSING FLEXIBILITY

V2.2




# 3-Axis FORCE Sensor

# OMD-20-SE-40N

## Description:

OptoForce 3D sensors measure the magnitude and the direction of Fx, Fy, and Fz 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:

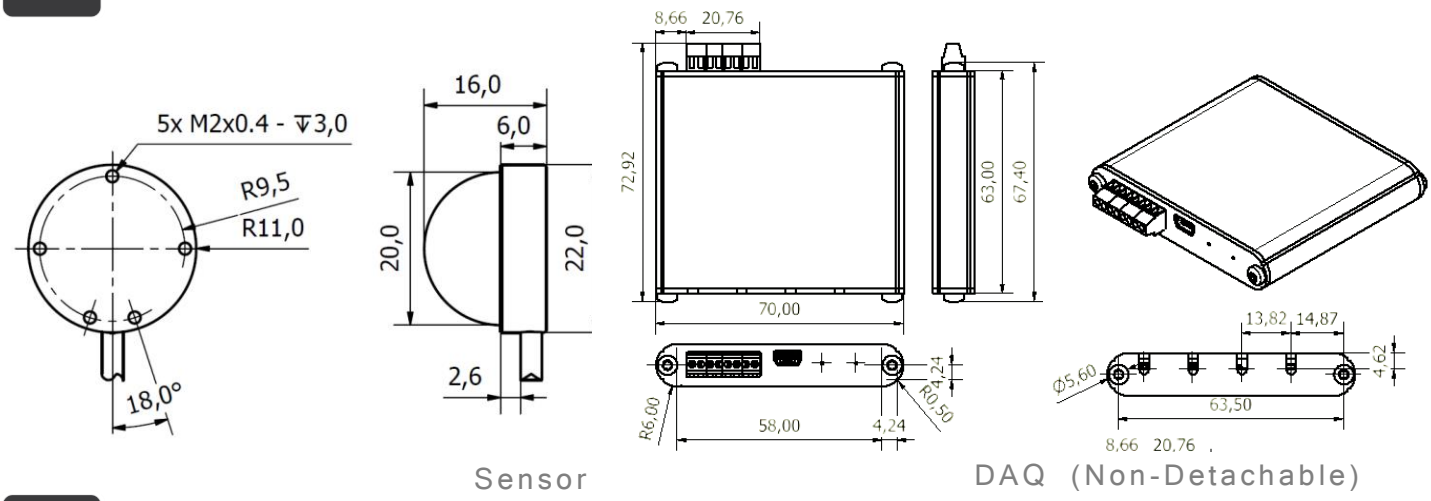
- Multi axis force measurement
- High resolution
- Highly adaptable product design
- Dust and water proof (IP65)
- High overload range
- Mechanical shock resistant
- Cost efficient solution
- Easy integration

| | Nominal Capacity | Typical Deformation |
|---|---|---|
| **Fxy** | ± 10 N | ± 1.5 mm |
| **Fz** – compression | 40 N | 2 mm |

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

## CAD DRAWINGS

# OMD-20-SE-40N




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 (11 g) |
| | | | |
| | Fz<br>Compression | | Fxy |
| Nominal Capacity (N.C) | 40 N | | 10 N |
| Single axis overload | 200 % | | 200% |
| Full scale nonlinearity | 2 % | | 2% |
| Resolution | 2.5 mN | | 2 mN |
| Single axis deformation at N.C | 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 |

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

## INTERFACE TYPES

| | | | |
|---|---|---|---|
| USB | CAN | UART | Ethernet<br>TCP/UDP |
| Maximum sampling frequency 1000 Hz | | | |
| Supported systems Windows; Linux; ROS; UR | | | |