

## KEY FEATURES

- ✓ No programming skills are needed
- ✓ Functions like center pointing, insertion, hand guiding or path recording
- ✓ Precise presence detection
- ✓ Keep constant force while moving
- ✓ Adds the sense of touch to your robot
- ✓ Dust and water resistant (IP67<sup>1</sup>)



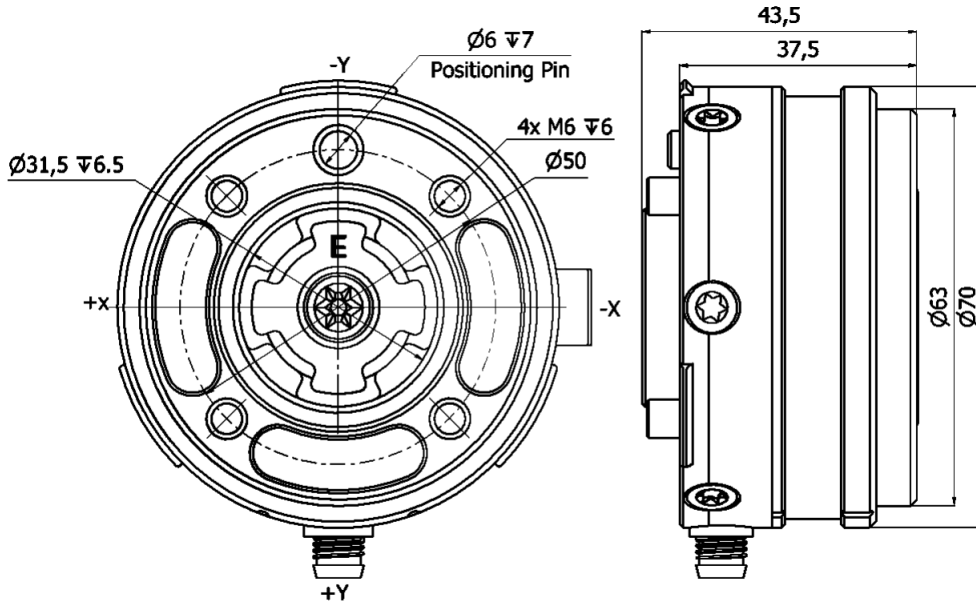
## TECHNICAL SPECIFICATIONS

| Sensor Type                                | 6-Axis Force/Torque Sensor                             |          |          |          |
|--|--|----------|----------|----------|
| Dimensions (Height x Diameter)             | 37.5 x 70 mm   |          |          |          |
| Weight (with built-in adapter plates)      | 245 g  |          |          |          |
|  | Fxy  | Fz       | Txy      | Tz       |
| Nominal Capacity (N.C)                     | 200 N  | 200 N    | 10 Nm    | 6.5 Nm   |
| Single axis deformation at N.C (typical)   | ± 1.7 mm   | ± 0.3 mm | ± 2.5 °  | ± 5 °    |
| Single axis overload                       | 500 %  | 500 %    | 500 %    | 500 %    |
| Signal noise <sup>2</sup> (typical)        | 0.035 N  | 0.15 N   | 0.002 Nm | 0.001 Nm |
| Noise-free resolution (typical)            | 0.2 N  | 0.8 N    | 0.010 Nm | 0.002 Nm |
| Full scale nonlinearity                    | < 2%   | < 2%     | < 2%     | < 2%     |
| Hysteresis (measured on Fz axis , typical) | < 2 %  | < 2 %    | < 2 %    | < 2 %    |
| Crosstalk (typical)                        | < 5 %  | < 5 %    | < 5 %    | < 5 %    |
| Working temperature range                  | 0 C° / +55 °C  |          |          |          |
| Power requirement                          | DC input range 7-24V                                   | 0.8 W    |          |          |
| Mounting screws                            | 5 x M4 x 6 mm<br>1 x M4 x 12 mm (for the Cable Holder) |          |          | ISO14581 |

<sup>1</sup> It needs protection when working in corrosive liquid environments

<sup>2</sup> Signal noise is defined as the standard deviation (1  $\sigma$ ) of a typical one second no-load signal.

## MECHANICAL DIMENSIONS

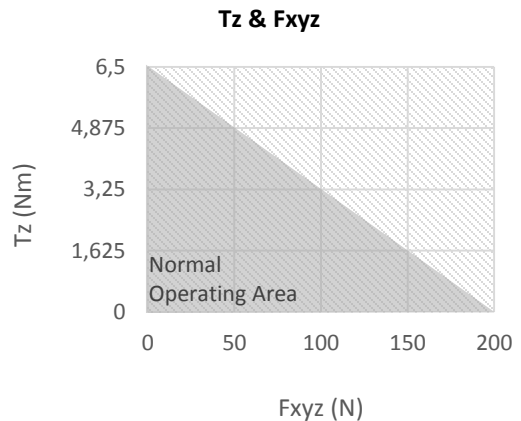
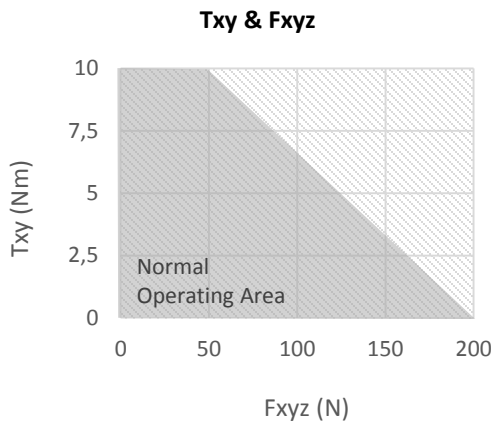


## COMPLEX LOADING

During single-axis loading, the sensor can be operated up to its nominal capacity. Above the nominal capacity the reading is inaccurate and invalid.

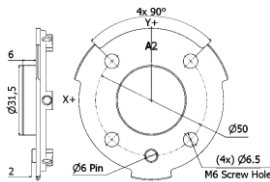
During complex loading (*when more than one axis is loaded*) the nominal capacities are reduced. The following diagrams show the complex loading scenarios.

The sensor **cannot be operated** outside of the Normal Operating Area.

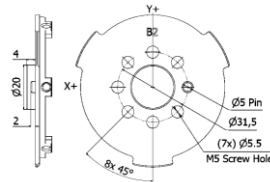


## ADAPTER OPTIONS

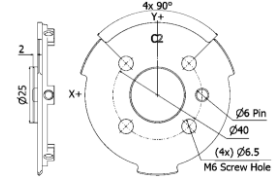
Adapter "A2"



Adapter "B2"



Adapter "C2"



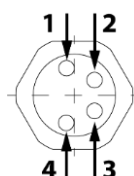
| Adapter "A2"                           | Adapter "B2"  | Adapter "C2"                          |
|--|---|---------------------------------------|
| Mounting screws:<br>M6x8 BN20146 (x4)  | Mounting screws:<br>M5x8 BN20146 (x7)                       | Mounting screws:<br>M6x8 BN20146 (x4) |
| Universal Robots UR3, UR5, UR10        | KUKA KR 3 R540  | KUKA KR 6                             |
| KUKA KR 16, KR 16 S, KR 16 R1610       | KUKA KR 6 fivve, KR 6 sixx WP, KR 6 R1820, KR 6 R1820 HP    | KUKA KR 16 L6                         |
| KUKA KR 20-3, KR 20-3 C, KR 20 R1810   | KUKA KR10 fivve, KR 10 sixx WP, KR 10 R1420, KR 10 R1420 HP | ABB 140, 1410 *                       |
| KUKA KR 8 R2010                        | KUKA KR 8 R1620, KR 8 R1620 HP                              | ABB 1600 *                            |
| KUKA KR 12 R1810                       | ABB 120, 1200 *   |                                       |
| KUKA KR 22 R1610                       |   |                                       |
| KUKA LBR iiwa 7 R800, LBR iiwa 14 R820 |   |                                       |

\* Only mechanical compatibility

## INTERFACE TYPES

| USB                                       | CAN | Ethernet - TCP/UDP | EtherCAT |
|---|-----|--------------------|----------|
| Maximum sampling frequency 500 Hz         |     |                    |          |
| Supported systems Windows; Linux; ROS; UR |     |                    |          |

## CONNECTOR PINOUT



- 1 : V+
- 2 : CAN High
- 3 : V-
- 4 : CAN Low