

JR3 Multi-Axis Force-Torque Sensor Technical Specifications

Sensor Model: Mechanical Load Rating:	30E12A4 40N	30E12A4 100N	30E12A4 200N
Diameter (mm)	76	76	76
Thickness (mm)	31.8	31.8	31.8
Material	AL 2024	AL 2024	AL 2024
Weight, approximate (g)	280	280	280
Nominal Accuracy, all axes (% measuring range)	±0,25	±0,25	±0,25
Operating Temp. Range, non-condensing (°C)	-40 to +65	-40 to +65	-40 to +65
F_x, F_y			
Standard Measurement Range (N)	±40	±100	±200
Digital Resolution (N)	0,0050	0,013	0,025
Stiffness (N/m)	2,1e6	5,3e6	8,9e6
Single-axis Overload (N)	420	930	1470
Multi-axis Overload Coefficient, a (N)	420	930	1470
Multi-axis Overload Coefficient, b (N)	440	1200	2180
F_z			
Standard Measurement Range (N)	±80	±200	±400
Digital Resolution (N)	0,010	0,025	0,050
Stiffness (N/m)	21e6	53e6	96e6
Single-axis Overload (N)	1270	3100	5340
Multi-axis Overload Coefficient, c (N)	1270	3100	5340
M_x, M_y			
Standard Measurement Range (Nm)	±3,1	±8,0	±16
Digital Resolution (Nm)	0,00039	0,0010	0,0020
Stiffness (Nm/rad)	9900	25000	46000
Single-axis Overload (Nm)	20	48	83
Multi-axis Overload Coefficient, d (Nm)	20	48	83
M_z			
Standard Measurement Range (Nm)	±3,10	±8,0	±16
Digital Resolution (Nm)	0,00039	0,0010	0,0020
Stiffness (Nm/rad)	2100	6600	13000
Single-axis Overload (Nm)	14	38	70
Multi-axis Overload Coefficient, e (Nm)	14	38	70

Standard Measurement Range

- This is the range of loads that each sensor model is ideally suited to measure. Factory adjustments to internal or external electronics allow custom measurement ranges to meet application-specific needs.

Bolt Patterns

- The 30E12A4 sensors are available standard with the ISO 9409-1 Ø40mm bolt pattern.
- Alternate and custom bolt patterns are also available.

Multi-axis Overloads

- Insert your estimated applied loads and the coefficients from the above table into the equations below to determine safe loading:

$$F_x/a + F_y/b + F_z/c + M_x/d + M_z/e \leq 1$$

and

$$F_x/b + F_y/a + F_z/c + M_y/d + M_z/e \leq 1$$

Both equations must be satisfied to avoid damage.

- If additional overload capability is desired we recommend using a higher-rated sensor with its measuring ranges electronically lowered.

JR3, INC.

22 HARTER AVENUE WOODLAND, CA 95776
(530) 661-3677 www.jr3.info