

# 160M50A

## SENSOR OVERVIEW

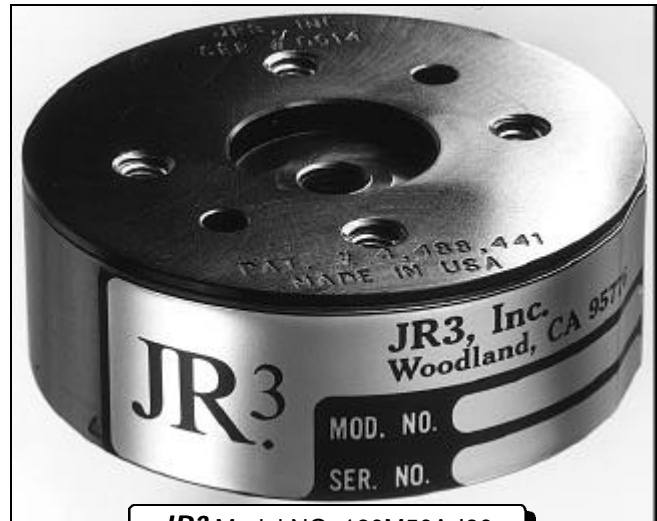
The 160M50 is a member of the **JR3** family of six axis force and torque transducers with internal electronics. It is 160mm in diameter and 50mm thick. The I80 and I100mm variants use the mechanical interface specified by the International Standards ISO 9409-1-A 80 and 100.

The 160M50 has signal conditioning electronics integrated into the sensor body. Included in the electronics are amplifiers, a 16 bit analog to digital converter, an EEPROM containing calibration data and RS-485 serial drivers. The 160M50 outputs a 2 megabit per second serial data stream which contains complete 6 axis data at 8 kHz and can be read by any of **JR3's** serial receivers. The 16 bit A/D converter and full Wheatstone bridge strain gage configuration provides outstanding resolution.

The 160M50 is machined from a solid billet of aluminum. The resulting monolithic structure produces a transducer with unsurpassed hysteresis and precision properties. The 160M50 uses metal foil strain gages bonded to strain rings as the sensing element. This produces linearity, and thermal performance superior to other strain sensing technologies and geometries. The mechanical structure of the 160M50 also produces a transducer with exceptional stiffness.

As can be seen on the interface drawing, the 160M50 has captive bolts which allow direct connection to the user's tool flange. The top of the transducer contains a copy of the tool flange. This feature eliminates the need for adapter plates, which saves weight and lowers the installed height.

The 160M50 can interface to a variety of receiver electronics. **JR3** has DSP-based receiver electronics available for several industry standard computer busses. These receivers are able to process the force and moment data at the full 8 kHz data rate. They provide decoupling, coordinate transformation, low-pass filtering, vector calculation, threshold monitoring, peak capture and rate calculations.



**JR3 Model NO. 160M50A-I80**

### Capacities, Resolutions, Stiffnesses and Permissible Single Axis Overloads:

#### 150 lb Model:

Fx,Fy	Fz		Mx,My	Mz	
150	300	lbs	950	950	in-lbs
630	1260	N	100	100	N-m
0.05	0.09	lbs	0.3	0.3	in-lbs
275	2120	klbs/in	7400	2300	kin-lbs/rad
900	3600	lbs	4700	4000	in-lbs

#### 250 lb Model:

Fx,Fy	Fz		Mx,My	Mz	
250	500	lbs	1600	1600	in-lbs
1000	2000	N	160	160	N-m
0.08	0.16	lbs	0.5	0.5	in-lbs
455	3360	klbs/in	11700	3920	kin-lbs/rad
1600	6900	lbs	9100	7450	in-lbs

#### Weight:

4.8 lb (2.2 kg)

#### Available interfaces (bolt patterns) for 160M50:

ISO 80mm, ISO 100mm, CM776, S400, S700, K60S, L60S

**JR3, Inc. has been designing and manufacturing six axis loadcells since 1983. We have manufactured six axis loadcells ranging in diameter from 2 to 13 inches, and with load capacities from 2 to 25,000 lbs and 0.25 to 22,000 ft-lbs. Please feel free to call our applications engineers to discuss your particular needs.**