

100M40A

SENSOR OVERVIEW

The 100M40 is a member of the **JR3** family of six axis force and torque transducers with internal electronics. It is 100mm in diameter and 40mm thick. The ISO63mm variant uses the mechanical interface specified by the International Standard ISO 9409-1 — A 63, the U760 variant interface matches the Unimation 760 series robots.

The 100M40 has signal conditioning electronics integrated into the sensor body. Included in the electronics are amplifiers, an analog to digital converter, an EEPROM containing calibration data and RS-485 serial drivers. The 100M40 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 100M40 is machined from a solid billet of aluminum. The resulting monolithic structure produces a transducer with unsurpassed hysteresis and precision properties. The 100M40 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 100M40 also produces a transducer with exceptional stiffness.

As can be seen on the interface drawing, the 100M40 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 100M40 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. 100M40A-I63

Capacities, Resolutions, Stiffnesses and Permissible Single Axis Overloads:

50 lb Model:

Fx,Fy	Fz		Mx,My	Mz	
50	100	lbs	200	200	in-lbs
200	400	N	20	20	N-m
0.01	0.05	lbs	0.05	0.05	in-lbs
55	515	klbs/in	720	205	kin-lbs/rad
270	1130	lbs	950	800	in-lbs

100 lb Model:

Fx, Fy	Fz		Mx,My	Mz	
100	200	lbs	400	400	in-lbs
400	800	N	40	40	N-m
0.02	0.1	lbs	0.1	0.1	in-lbs
115	1080	klbs/in	1540	480	kin-lbs/rad
450	1950	lbs	1650	1450	in-lbs

Weight:

1.4 lb (650 g)

Available interfaces (bolt patterns) for 100M40:

ISO63mm and Puma 760

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.