Monad Electronics

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Monad Electronics,India

Introduction

Winner of National Award for year 2009-2010 in R&D

Monad Electronics is An ISO 9001:2015 certified company, which has been involved for over 20 year in the business of designing, manufacturing and export of Electronic Industrial products, Testing equipments , sensors and related indicating and controlling devices and allied products related to Data logging & Acquisition.

Monad is specialized in providing high end and high accuracy customized Force Transducers, Multi-Axial Force Transducers and Torque Sensors. Monad is an expert in providing import substitutes of high end Load Cells, Safe Load Indicators, etc

We are supplying to leading industries and government institutions and are also exporting our products to USA, Germany, Belgium, Turkey, Australia, U.A.E., Singapore, Spain, Brazil, New Zealand, Philippines, UK, Croatia and to the African countries.

Monad's Motor Test System is a PC based, turn-key system specifically designed for testing AC or DC motors. This tester simulates the atmosphere that the motors experience during startup and normal operating conditions Provides motor performance data, from stall up to no-load, within seconds, including torque, speed, current, voltage,input power, output power, time, efficiency, direction of rotation.

Provides dynamic performance tests data, including:speed and torque spectrum, speed and torque oscillations, friction torque, friction spectrum. Motor performance data can be recorded in the system database for comparison and statistical analysis.

Supports non-contact frictionless sensors.
Support BLDC, PMSM, PMDC, Induction, Stepper motors.
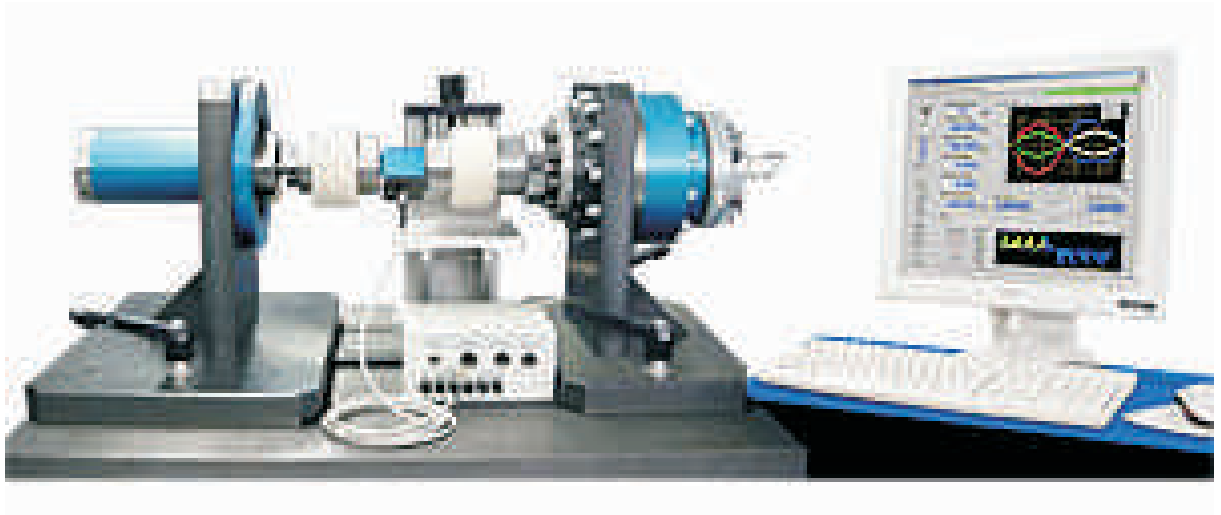Motor power switching is done automatically by the system.
Motors can be tested inside their applications.
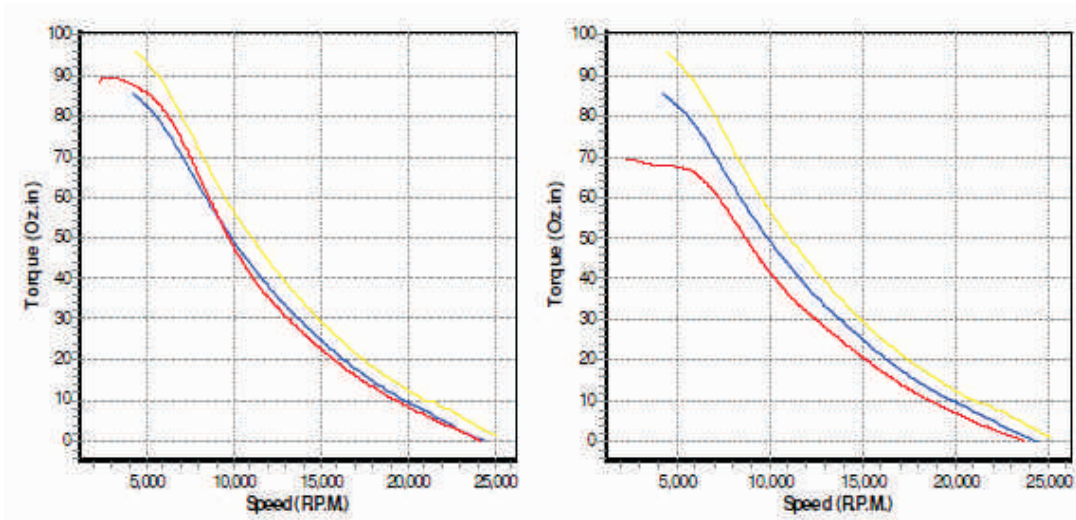Tests results are provided graphically and tabulated.
Test reports in Excel format.

Technical Specifications:

Monad Torque & Performance test system

S.No	Parameter	Specifications
1.	Motor will be tested	a)PM Brushed DC b)BLDC c) PMSM
2.	Type of Dynamometer	Inertial (Acceleration Test) based
3.	Current Range	0-20 A
4.	Torque Range	0-5 Nm with a minimum resolution of 0.05 Nm
5.	Speed Range	0-5000 rpm
6.	PWM frequency	10-25 kHz (for BLDC/PMSM)
7.	Input Power	20 – 32 VDC for motor / motor controller,1 – Phase 230VAC, 50 Hz for all other Equipment
8.	Type of graphs/ derived parameters to be generated after the test.(All the resulting graphs/ data output files will be logged in PC and will be available for printing to the user)	a) Complete performance curve from stall up to no load for torque vs speed, Torque vs current, speed vs Current, Power in vs Speed,power out vs Speed, Efficiency vs Speed, Voltage vs Speed, Time vs Speed, Frication vs Speed, Back EMF vs Speed, Speed spectrum, Torque spectrum, Frication spectrum, oscillation and Cogging torque vs Angle can be plotted.

		b) Derived parameters at No. Load, Stall,Maximum Efficiency and Maximum Power will be Displayed along with moment of Inertia of the rotor, input voltage, Direction of rotation, threshold current, Ripple Torque, Mechanical and Electrical Time Constant, Back EMF Constant, Armature resistance and Inductance. C) Any other additional plots/tests as required by the customer (IF technical feasible).
9.	Parameter measurement Accuracy	≤ +/- 0.25%
10.	Sampling Frequency	≥ 5000 samples / second
11.	Test Set up will have following components requirements for testing all the three type of motors given in S No. 1 (List of Deliverables)	a)Industrial Computer with 19" LCD monitor,Intel Pentium 4 processor or eqvt @ 3 GHz Min, Windows 7 Professional, HDD 240 GB or higher, 2 USB support, DVD drive. b)Inertial Dynamometer based testing software (Latest & full version with all applications) c)Sets of Power Analyzers for brushed DC, BLDC and PMSM motor for given current and voltage ranges. d)DSP/ Microprocessor based dedicated controller e)Motor holding device to hold motor ranging from diameter 50mm to diameter 150mm

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		f) Mobile Test Table with racks to accommodate all components (Table Weight will be less than 100 kg.)
		
		g) Contact type speed/RPM sensor with range up to 5000 rpm.
		
		h) Necessary numbers of Flywheels for the tests
		
		I) 5 Shaft Adaptors to couple with following shaft dimensions of motors:
		
		   a) Brushed DC motors,
		   • 5 mm diameter
		   • 6 mm diameter
		     ii. Two sizes of PMSMs
		   • 30 mm diameter
		   • 75 mm diameter
		     iii. One size of BLDC motor
		   • 30 mm diameter
		
		j) Software / Hardware / user / maintenance manual (hard copies (1set) + soft copy on CDs) Other hardware's & accessories (Power chords, connectors, cable, License key) necessary to carry out the all tests

12.	Acceptance & Demonstrate	We will demonstrate all the tests mentioned in S. No. 8 for all

		the three motor types of S. No. 1 at customer site.
13.	Installation and training	Installation and training will be carried out by our engineers at customers site..
14.	Configuration Block Diagram	As per shown in figure 1. Of tender document
15.	Documentation	13 months form date of billing or 12 Months from date of installation.
16.	Warranty	13 months form date of billing or 12 Months from date of installation