Application Note

4-Quadrant AC Motor Tester

Data Acquisition – SL2000
Process Control – PLC/VFD

Industry: Motor Manufacturers

Equipment: Yokogawa SL2000

Installation Area: Motor Design Lab, Testing Lab and Assembly Shop Floor

Vidac Solutions specializes in precision industrial test equipment designed to improve quality assurance, production efficiency and end of line validation for electric motor manufacturers.
As a core offering, Vidac Solutions 4-Quadrant Back Drive Testers (BDT) deliver precise, repeatable measurements of motor assemblies, ensuring performance startup requirements are consistently achieved.

What is Back Drive Testing?
Back drive testing measures either the torque required to reverse drive a motor or the voltage produced by back drive action.

- Measures winding polarity, magnet polarity and spacing and produced voltage of a Permanent Magnet motor
- Mechanical Integrity – Detects misalignment, binding or excessive friction
- Ensures motor leaving production meet defined tolerances
- Predictive Insights – Provides baseline data for long term maintenance and reliability

Key Features of Our BDT Systems

- All testers use Yokogawa Oscilloscopes, Power Meters and Data Acquisition equipment
- Our 4-Quadrant testers validate the key electrical and mechanical characteristics of a motor while being driven externally (back driven) across all four operating quadrants (forward motoring, forward generating, reverse motoring, reverse generating)
- Accurately record Back EMF using Precision Test and Measurement
- High precision torque measurement accurate to a specific rated torque
- Automated Test Sequence – Configurable pass/fail limits
- Real time data logging – integrated software for trend tracking and reporting
- Customizable fixtures – Adaptable to a wide range of AC motor sizes and shafts
- Safety Features – Guarding, Interlocks and compliance for Industry Standards

Key Benefits

- Reduced warranty claims before motor reaches end user market
- Shorter test cycles – increase throughput without sacrificing accuracy
- Lower operating costs – Automated low maintenance system
- Scalable solutions – From lab scale testers to fully automated production

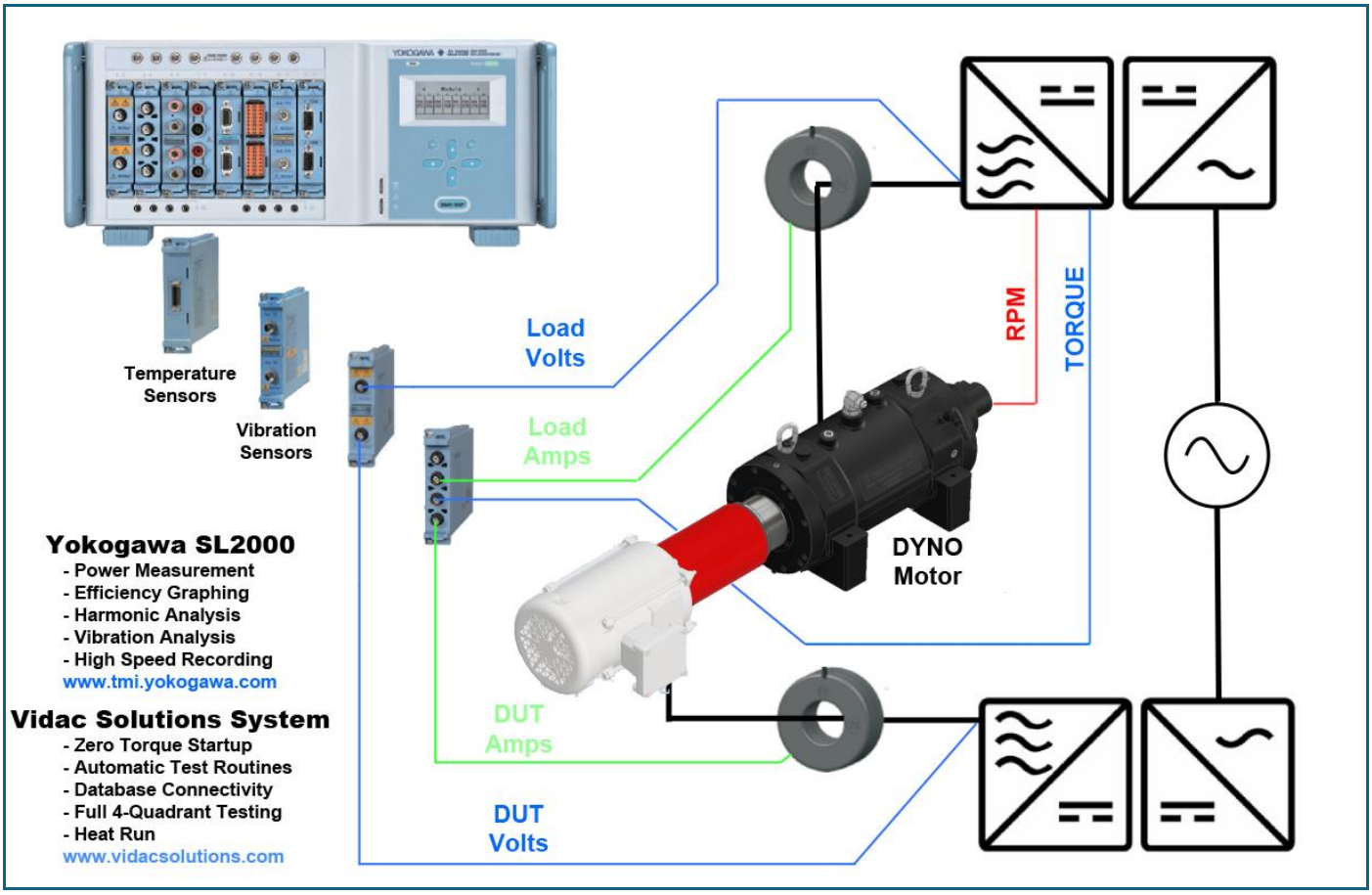
Why Vidac Solutions

Backed by proven expertise in electromechanical systems, industrial automation and trusted by leading motor manufacturers worldwide.

Our engineers collaborate closely with customers to develop customized test solutions that meet precise product requirements and production objectives.

Various measurements at tests points on the motor and drive system require specialized equipment optimized to ensure the highest quality test results. The Yokogawa SL2000 has the highest accuracy, configurable channels, built in DAQ and multiple type of signals that can be measured.

Simplified Hardware/Software Integration using Yokogawa Equipment



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