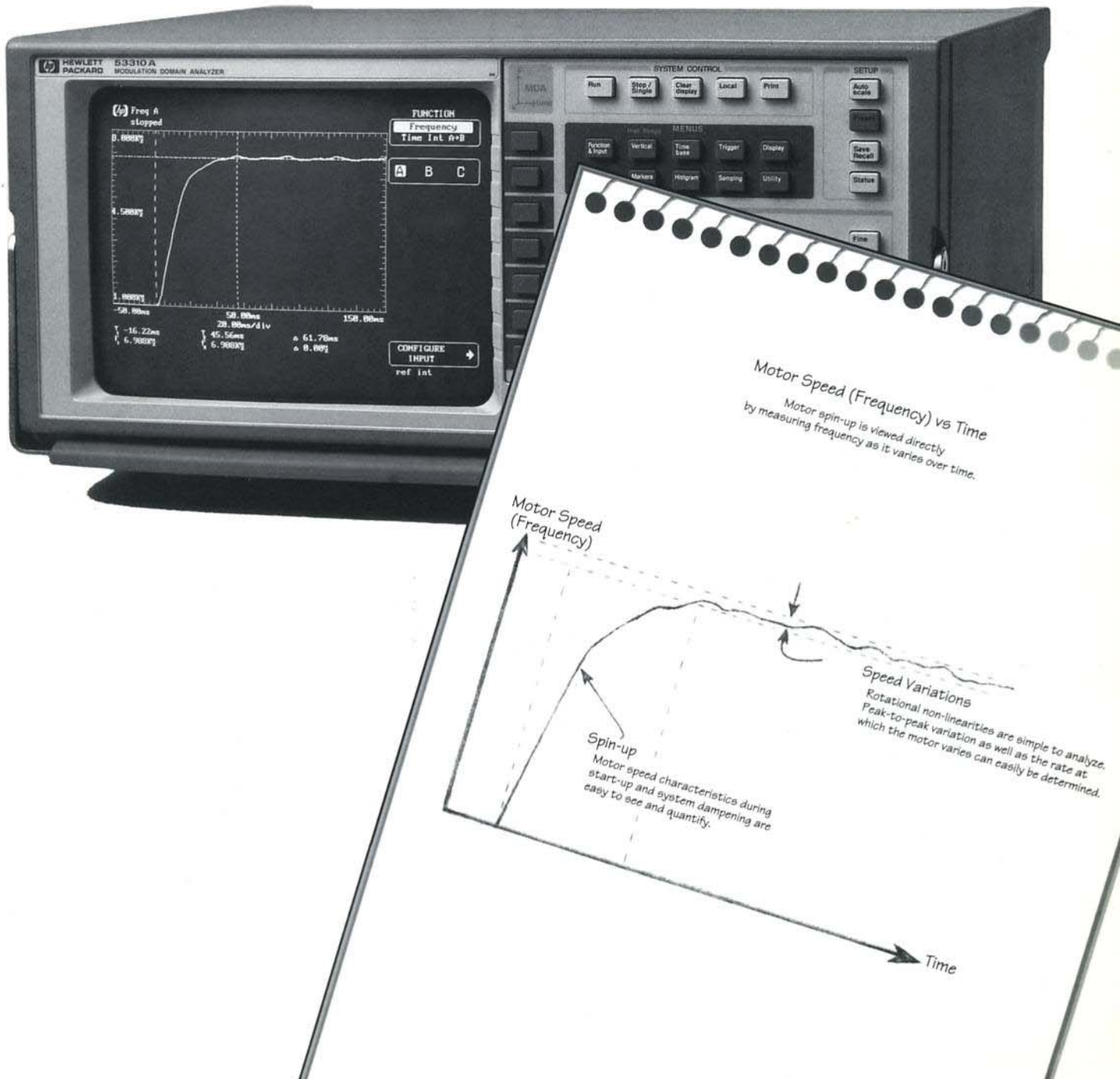
HEWLETT PACKARD

Simplified Motor Spin-up Analysis

Application Brief AN 1200-1

HP 53310A Modulation Domain Analyzer



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View Motor Spin-up Directly

Situation

Motors are used in a wide range of applications, from consumer products to industrial robotics. They can operate under servo control or open loop. In either case, the motor's performance is often critical to the performance of the product or system. Consequently, an easy method to characterize a motor's performance is needed.

Problem

Characterizing a motor's performance often requires the use of indirect measurement methods. A tachometer can be used, but it affects the motor's performance and is ineffective at slow speeds. Alternate techniques, using a controller and custom electronics, are often required to view a graphical display of motor spin-up.

Solution

The HP 53310A makes it easy to capture and view motor spin-up, without the need for an external controller. With a shaft encoder, the motor's motion can be easily captured and analyzed. Unique triggering capabilities allow you to trigger directly on speed changes, making transient capture easy. Analysis is simplified with measurement markers and automated analysis functions.

The Modulation Domain Gives You a New Way to View Your Complex Signals

Better ways to analyze your complex signals don't come along often. Now Hewlett-Packard brings you the Modulation Domain - a way of looking at frequency or time interval measurements that directly and clearly reveals both intentional and unintentional modulation.

For frequency analysis, it's the missing piece of the puzzle. The Time Domain shows you amplitude (voltage) vs. time. The Frequency Domain gives you amplitude vs. frequency. The Modulation Domain plots frequency vs. time - an intuitive and insightful way of examining your signal's dynamic frequency modulation.

For timing measurements, the Modulation Domain's view of time interval vs. time allows you to both see and quantify timing jitter directly - taking you one step beyond the Time Domain's qualitative view.

Related Applications

- Stepper motors
- Capstan drives
- Laser printer motors
- Copier motors
- Fax motors
- Engine cranking
- Engine step response
- Motor step response
- Turbines

For more information, call your local Hewlett-Packard Test and Measurement Sales Office listed in your telephone directory.

December 1990

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Printed in U.S.A.
5091-0385E