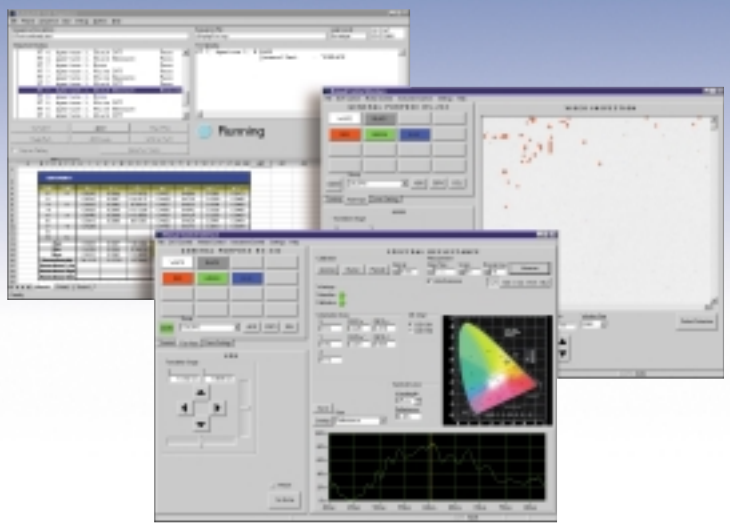
Westar's Microdisplay Inspection System



Microdisplay Inspection Systems

Westar's Microdisplay Inspection System (MDIS) allows you to test and inspect microdisplays from QVGA to beyond UXGA without changing the camera or optics! The MDIS is a complete electro-optical measurement system, including both spectrometer and CCD camera instruments and a coaxial illumination source for reflective displays. The MDIS is designed to test microdisplays prior to the installation of optics or illumination. Carriers containing multiple parts can be quickly loaded and unloaded to facilitate rapid testing with minimal operator intervention.

Application

Designed for clean room environments, the MDIS is used in the following applications:

- Manufacturing, production test and inspection
- Quality assurance and quality control (QA/QC)
- Engineering performance measurements

Measurements

Precisely measure critical microdisplay performance and process parameters using MicroPoint™ Software:

- % Reflectance
- Contrast Ratio
- Uniformity
- Blemishes and Pixel Defects
- Spectral Response
- Plus Others!

Description

The MDIS includes a part positioning stage, spectrometer and CCD camera instruments, computer controlled quartz halogen light source, control electronics, system controller PC and MicroPoint™ software. The system is built on a damped optical table and housed in a sturdy steel enclosure. Standard instrumentation includes a spectrometer and a CCD camera for making both optical performance and defect measurements.

Optical Assembly

The MDIS optical assembly maximizes flexibility by including a lens assembly with computer-controlled zoom and focus to accommodate various display resolutions and pixel pitch. Coupled with the lens assembly is a computer-controlled lamp. The lamp is monitored by software to provide a very stable illumination source for reflective display measurements. In addition, an integral aperture wheel that allows measurement of optical performance at various f-numbers.

Motion Stage

The part positioning stage accepts carriers containing multiple displays and consists of very accurate X, Y, and theta motion tables, which provide automatic part alignment and allow accurate positioning of the microdisplays under the optical instrument head.

Control Computer

The control computer is a high performance PC with Windows NT operating system and a 17" monitor.

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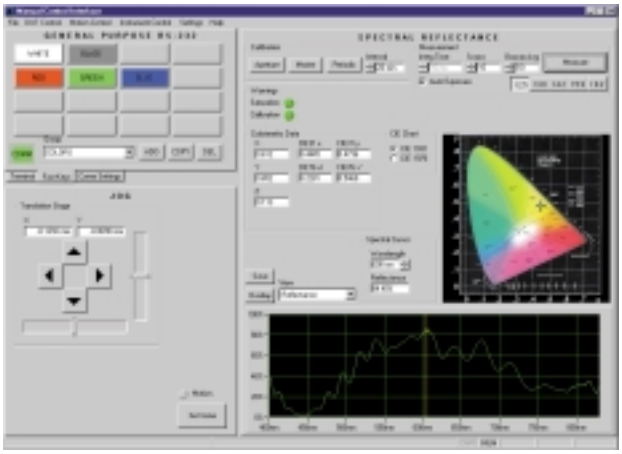
MicroPoint™ Software

The cornerstone of the MDIS is Westar's MicroPoint™ software. MicroPoint™ provides access to all system resources through a set of easy-to-use Graphical User Interfaces (GUIs). Through MicroPoint™, you can control positioning of the display under test, perform optical measurements with the spectrometer, perform real-time video inspection using the CCD camera, or use powerful image processing algorithms to locate pixel defects, contamination, and blemishes. For greater flexibility, MicroPoint™ consists of two operating modes: manual mode and automatic test mode.

Manual Mode

The Manual Control Interface (MCI) provides access to all features of the MDIS. The MCI is useful for performing laboratory experimentation, engineering investigation or QA/QC failure investigation. In the MCI mode, you can directly control the position and state of display under test, and make measurements with either the spectrometer or CCD camera. The spectrometer allows you to measure the spectral response of microdisplays. Measurement results are reported as reflectance versus

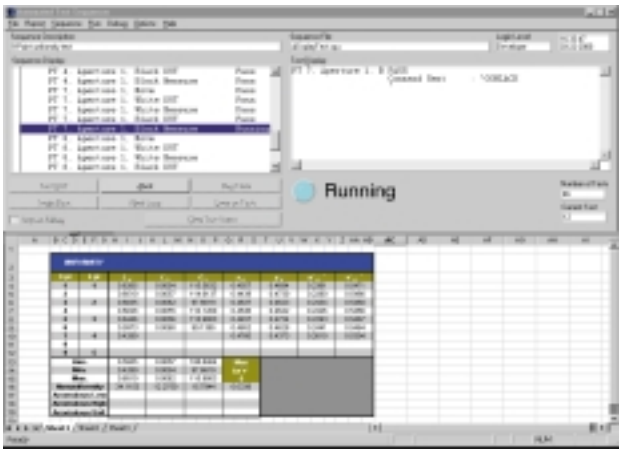


wavelength. The MDIS also calculates photopically weighted reflectance and color while taking into account the spectral response of the illumination source/filters that you will use in your end application.

With the CCD camera and integral zoom lens the system can function as a powerful video microscope allowing you to visually inspect for defects, and even observe subpixel contamination!

Automatic Test Mode

The Automated Test Sequencer (ATS) allows you to create, edit, and run automatic test scripts. By using the standard Westar test primitives, you can easily and quickly develop your own custom tests. The library of test primitives includes powerful defect detection algorithms to automatically detect pixel and subpixel defects, line and



cluster defects, and other blemishes. The results of your tests can be logged to a Microsoft Excel spreadsheet report of your own design or to your own database.

The automated test mode is ideal for production environments. Once a carrier of parts is loaded, the MDIS can run unattended. ATS built-in-functions can also be used to generate E-mail messages with attached files when specific events occur, allowing remote monitoring of the testing process.

Power Requirements:	115/220 Vac 50/60Hz 15A
Operating Temperature:	10-40°C
Operating Humidity:	50-70% non-condensing
System Controller PC	Call Westar for latest config. O/S: Windows NT
Display Size	<2" x 2"
Motion Range	X=12", Y=4", theta=+/-5°
Motion Resolution	0.5µm
Motion Repeatability	+/-0/5µm to +/-0.5µm
Spectral Measurement Range	400 to 700nm
Spectral Resolution	1.33nm FWHM
CCD Camera Resolution	1300 x 1030 pixels
External Dimensions:	34"(w) x 33"(l) x 68"(h)

Installation, Warranty, and Support

Our basic system package includes installation, setup, and training support for your developers, users and technicians. Westar includes an outstanding one-year warranty and technical support package. (An extended warranty and support package is also available.)

For more information, please contact us in the US at 1-800-518-8379, ext. 286.

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