Advanced Photoconducting Drum Test System PDT®-2000LTM

The PDT-2000LTM is an advanced drum test system for characterization of photo-receptors used in electro-photographic printers and copiers. Designed primarily for drum testing, the system can also be used for sheet sample testing by wrapping the test sample around a bare drum. The PDT-2000LTM is typically used in production quality control and in research and development.

Overview

A standard PDT-2000LTM system consists of a light-tight scanner, an electrostatic voltmeter, an external exposure light source with fiberoptic light guide, an LED erase light source, and a light meter. The scanner supports a wide variety of drum types and sizes. The computer-controlled tungsten halogen light source is equipped with band-pass filters for wavelength selection. The control software runs on a PC with Microsoft Windows 7 or higher operating system and a minimum of two USB2.0 ports.

PDT-2000LTM test functions are software-controlled. Key test parameters, such as charging level, exposure energy, erase intensity, scan type, and scanning speed, are specified by the user. In a typical test session, the operator loads a drum into the scanner, selects the test to be run, sets the test parameters, and activates the test with the control software. The system performs the scan, gives a pass/fail reading based on user-specified parameters, and reports the results. The scan data are saved for further review and analysis and can be exported to other software.

Built-in Test Functions

- Charge acceptance scans
- Photo-discharge scans
- Dark decay measurement
- Cyclic fatigue tests
- Photo-induced discharge curve (PIDC)
- Erase residual measurement
- Axial scans
- Single and multiple track scans
- Charge and discharge uniformity mapping
- Defect mapping

Typical Applications

- Photoreceptor manufacturing quality control
- Materials research and development
- Acceptance testing

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System Specifications*

PDT®-2000LTM

Test Functions

- Charge acceptance scans
- Photo-discharge scans
- Dark decay measurement
- Cyclic fatigue tests
- Photo-induced discharge curve (PIDC)
- Erase residual measurement
- Axial and helical scans
- Single or multiple track scans
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System Hardware

Drum Charging

- Corona charging system
- Negative corona standard, positive corona optional

Exposure Light Source

- Tungsten halogen light source
- One interference filter (typically 780 nm) and one neutral density filter (typically 10%) supplied with system; others available as options
- Interference filters available between 400 and 1000 nm (approximate 50 nm increments)
- Exposure on/off controlled by an electromechanical shutter; minimum pulse duration less than 0.1 second
- Computer-controlled aperture for setting exposure intensity; maximum exposure energy approximately 2μJ/cm^2 at 780 nm wavelength and a scan speed of 400mm/s
- Light meter provided to monitor exposure intensity on-line

Erasure Light Source

- Erasure light source is a bank of red LEDs
- Maximum erasure energy typically 25μJ/cm^2

Voltage and Current Measurement

- System is equipped with a non-contact electrostatic probe for monitoring drum voltage
- Charging current measurement is built in

Drum Dimensions

- Maximum drum length 360 mm
- Maximum drum diameter 60 mm

Scan Speed

- Maximum linear speed ~400mm/s

Control Software

- EPLab® control software provides all measurement, data acquisition, and data analysis functions, including basic statistical functions (minimum, maximum, and mean voltages and standard deviation)

Computer Configuration (customer-supplied)

- Operating system: Windows® 7 to 10, 64-bit
- RAM: 8 GB or more
- Microsoft Excel 2007 or higher
- CD-ROM drive
- Two USB 2.0 ports

Electrical Requirements

- 110 volts±10% @ 50/60 Hz or 230 volts±10% @ 50 Hz

Maintenance and Operating Environment

- Requires good maintenance practices typical for laboratory equipment
- Temperature
  - Operating: 10º to 32º C (50º to 90º F)
  - Storage: 0º to 35º C (32º to 95º F)
- Relative humidity
  - Operating: 20% to 80%
  - Storage: 10% to 95% (non-condensing)

Dimensions and Shipping Weight

- Main unit: 25x51x74 cm (10”x20”x29”)
- Packaged dimensions (2 packages): 64x84x38 cm (25”x33”x15”) and 74x76x41 cm (29”x30”x16”)
- Total shipping weight (2 packages): 45 kg (98 lb)

Documentation

- User’s guide