

The LSI model 2140 retro-reflection tester is a computerized production-line quality control test system allowing for 100% quality inspection at the point of manufacture. Housed in a vertical tower, it provides measured values of the performance of any type of reflex reflector. The unit contains its own light source and photodetector, and is supplied a computer and easy-to-use Windows™ based software.

Specifications

Space required — 2'Wx 3'Lx12'H - Sturdy construction suitable for factory manufacturing environments.

Test Fixture Mounting — The test jig (supplied by customer) is easily positioned through the access door and is mounted to a set of locating holes in the system's base.

Traceable Standard — Actual product samples can be used as standards. Calibrated by the LSI laboratories, traceable to NIST.

Projector System — Calibrated illuminant "A" source producing a collimated 10" diameter beam of light on test sample area at a color temperature of 2,856° (Kelvin). Two (2) lamps supplied; replacements by quotation.

Alignment — Alignment provided by a laser inserted in the projector position.

Photocell — Silicon photodetector with photopic filter; stabilized for manufacturing environments; baffled from projector system.

Photocell Amplifier — Solid-state circuitry with accessible gain and zeroing controls.

Display — CRT (Computer monitor) displays candelas per incident footcandle.

Test Distance — 10 feet, 3 meters (test sample to photocell).

Observation Angle — 0.2 degrees off-axis. Other angles by request.

Test Specifications — Meets the operating principles of SAE J594f,

1977, and FMVSS No. 108, with reduced test distance.

Production Line Integration — The Model 2150 has been installed on robotics assembly lines to allow continuous unmonitored operation (quoted upon request).

Environmental Requirements

The automated retroreflection tester instrument is intended for use in an indoor environment subject to the following requirements:

- ◆ Operating Temperature: 40° to 110°F
- ◆ Humidity Range: 0 to 80% Non Condensing
- ◆ Storage Temperature: -40° to +75°C
- ◆ Power: 120 VAC, 60Hz, 10 Amps

Windows Software

User-friendly software, Windows-based, is supplied and allows operation of the unit by unskilled personnel. The software provides operator prompts for both calibration and testing.

A specification level (in candelas per footcandle) may be entered, which then is used to check and display pass or fail for each test.

Recording of the test results into a file also may be performed, to allow analysis of the parts for quality control. The output data file can be saved and exported to allow reading by QA software, Lotus 1-2-3, Excel and other programs.

Operation

Upon powering up, the test unit is allowed to stabilize for a period of 3-5 minutes. The photocell is covered (via exterior aperture control) and the meter is "zeroed out" using the ZERO ADJUST control. The standard (NIST traceable) sample is mounted on the test jig for system calibration. The system then self-calibrates when the calibration routine is selected from the software menu. Calibrations take less than 1 minute, and are recommended on a

by-shift basis. Weekly calibrations are done by rotating the three (3) standard reflex samples through the calibration steps. The operator then simply installs the sample to be tested and the reflectance value is displayed on the monitor along with a pass or fail indication.

Equipment Supplied

The Model 2140 automated system includes the following features and support equipment:

- ◆ Test system housed in 10 ft. (3m.) tower
- ◆ IBM compatible computer and keyboard
- ◆ Testing software and user's guide
- ◆ DC regulated power supply for test lamp
- ◆ 12-bit analog to digital converter
- ◆ Collimator, lamp and spare lamp
- ◆ Alignment kit (laser, mirror, target)
- ◆ Three calibrated reflex reflectors (optional)
- ◆ Password protection

For more information, contact the Lighting Sciences Sales Team at 480-991-9260, or fax your requests to 480-991-0375.



For Automotive Reflex Reflectors