VIP SERIES
VISIBLE IMAGE PROJECTOR
COMPLETE TEST & CALIBRATION SYSTEM

The EOI Visible Image Projector Series sets a new performance and capability standard for calibration and testing of sensors and cameras.

The VIP100 Series is a complete test and calibration system utilizing industry standard methodology to perform visible testing. The VIP removes the "Human Testing Variance" and provides reliable, repeatable, and quantitative test results.

Integrating Sphere
The EOI ISV Integrating Sphere is a compact, reliable, and easy to operate system designed specifically for testing and calibration of Sensors and Cameras. The built-in ISV controller utilizes a "Closed Loop Control" of the detector/attenuator system to precisely set and maintain the desired output level. Output luminance level is controlled by the touch of a button.

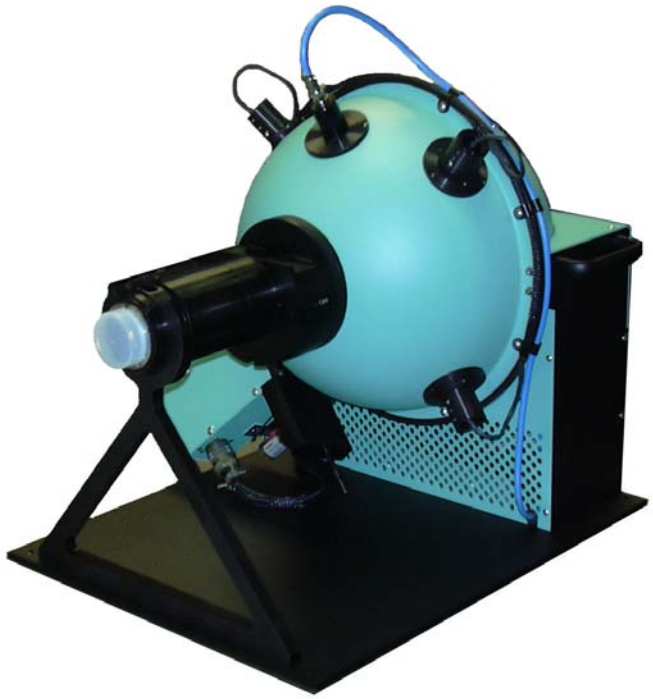
EOI TestLab Suite provides a full range of Visible Tests for "Automated" testing. The EO TestLab Suite removes the uncertainty of "Human Testing Variance". The VIP100 Series includes the following software modules: Focus, Uniformity, SNR, MRC, MTF, Resolution, and Distortion. Custom Test Modules can also be designed per customer request. The EO TestLab Suite comes complete with laptop computer, IEEE-488 Interface, manual, and cables.

Targets and Filters
EOI Certified Targets and Filters are installed and interchanged manually on the VIP100 Series. Optional equipment includes a motorized target wheel and a motorized filter wheel. Two filter holders and a certified knife edge (half-moon) target are included with the system.

Optics
The Optics, a one to one relay system, consists of high precision lenses, which project the sharpest possible image on to the sensor or camera.

Test Results & Reporting
The test results are presented in various graphs, data, tables, and summary figures of merit. Formats are designed to support manufactures, users, laboratories, and military test range requirements.

EOI has the capability to assist you with "Application Specific" requirements and will design a system to meet your needs.



VIP Series Features:

- **No Human Factor in the Loop for 90% of Tests**
- **Superior Uniformity**
- **Calibrated Light Levels**
- **Wide Dynamic Range**
- **Certified Precision Targets**
- **Automated Test Data Reduction**
- **Large Format (up to 2")**
- **Closed Loop Control for Ease of Use**
- **Built-in Controller**

Electro Optical Industries, Inc.

859 Ward Drive . Santa Barbara, CA 93111-2960 . Phone 805-964-6701 . Fax 805-967-8590
E-mail eoi@electro-optical.com **www.electro-optical.com**

Model VIP100

Specifications

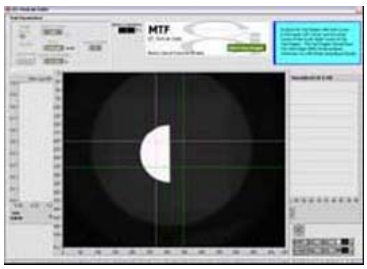
Dynamic Range	10^{-6} to 25,000 Ft-lamberts (with optional ND filter)
Color Temperature	2950 ± 25 Kelvin
Lens	Variable “F” Stop
Filters	ND and Photopic
PC Interface	IEEE-488.2, IEEE 1394, RS-232, USB 2.0, Ethernet LAN
Frame Grabber (Optional)	RS170, RS343, NTSC, PAL, CCIR and more

Uniformity
The uniformity of the sensor is measured by flooding the sensor with the output of the integrating sphere. One or more frames of data are captured and averaged. The percentage of variation from the mean signal level is plotted.

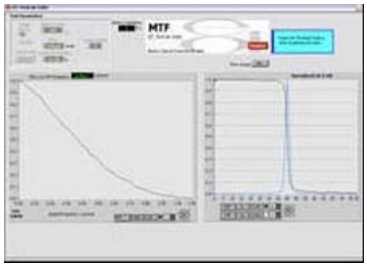
Signal to Noise Ratio – SNR
The signal to noise ratio for a visible sensor is measured by taking samples of both the signal region and the background region. The signal level and RMS noise for each region are calculated and the signal to noise ratio per video line is plotted.

Minimum Resolvable Contrast – MRC
MRC is a subjective measure of a visible sensor’s sensitivity and ability to resolve data. A series of optional four bar targets, of selected spatial frequencies and different contrast coatings, are presented to the sensor. A trained observer selects the smallest target reasonable at each contrast level. The software collects the data and provides a graph of contrast vs. spatial frequency at each luminance level.

EO TestLab MTF Tests

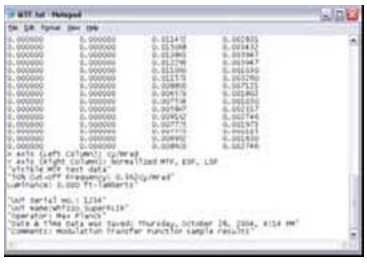


Modulation Transfer Function – MTF
MTF is a measure of the sensor’s ability to reproduce signals as a function of spatial frequency. The knife edge target is back-illuminated by the integrating sphere. The edge response data is analyzed to generate the MTF curve.



Resolution
The horizontal and vertical resolution of visible sensor is measured using an optional USAF 1951 resolution target. A trained observer selects the group and element number of the smallest target that can be resolved horizontally and vertically for a given luminance level.

Focus – Real Time Focus VI
Real Time Focus VI enables the maximum real time of the LSF and ESF functions for use with other subsequent tests that utilize the knife edge target such as MTF.



Distortion
Utilizing an optional pinhole array type target, the user overlays and positions an ideal pattern too ascertain the severity of geometric imaging anomalies associated with the sensor.

Custom Test Modules
Contact EOI for custom test modules to meet your most demanding test requirements.

859 Ward Drive . Santa Barbara, CA 93111-2960 . Phone 805-964-6701 . Fax 805-967-8590
E-mail eoi@electro-optical.com **www.electro-optical.com**