3.3 Introduction to Camera-Based Profilers

Beam Attenuating Accessories

A camera-based beam profiler system consists of a camera, profiler software and a beam attenuation accessory. Spiricon offers the broadest range of cameras in the market to cope with wavelengths from 13nm, extreme UV, to 3000 μm, in the long infrared. Both USB and GigE interfaces are available for most wavelength ranges providing flexibility for either laptop or desktop computers.

BeamGage Profiling software

Power Sensor: Optional

Example of Beam Attenuator: 2 wedge beam splitter with adjustable ND filters

Power Meter: Optional

Laser

Camera

BeamGage®, the profiling software, comes in two versions: Standard and Professional. Each builds off of the next adding additional capability and flexibility needed for adapting to almost any configuration requirement.

Spiricon also has the most extensive array of accessories for beam profiling. There are components for attenuating, filtering, beam splitting, magnifying, reducing and wavelength conversion. There are components for wavelengths from the deep UV to CO2 wavelengths. Most of the components are modular so they can be mixed and matched with each other to solve almost any beam profiling requirement needed.

Acquisition and Analysis Software

The BeamGage software is written specifically for Microsoft Windows operating systems and takes full advantage of the ribbon-base, multi-window environment. The software performs rigorous data analyses on the same parameters, in accordance with the ISO standards, providing quantitative measurement of numerous beam spatial characteristics. Pass/Fail limit analysis for each of these parameters can be also applied.

- ISO Standard Beam Parameters
- Dslit, Denergy, D4σ
- Centroid and Peak location
- Major and Minor Axis
- Ellipticity, Eccentricity
- Beam Rotation
- Gaussian Fit
- Flat-top analysis / Uniformity
- Divergence
- Pointing stability

For data display and visualization, the user can arrange and size multiple windows as required. These may contain, for example, live video, 2D Topographic and 3D views, calculated beam parameters and summary statistics in tabular form with Pass/Fail limit analysis, and graphical strip chart time displays with summary statistics and overlays. Custom configured instrument screens with multiple views can be saved as configuration files for repeated use. Data can be exported to spreadsheets, math, process/ instrumentation and statistical analysis programs, and control programs by logging to files or COM ports, or by sharing using LabView or ActiveX Automation.

- Video Dual Aperture Profiles
- Beam Statistics
- 3D Profile View
- 2D Topographic View
- Time Statistics Charts
- Pointing / Targeting
- Hide measurements and features not in use for user simplicity
- Notes