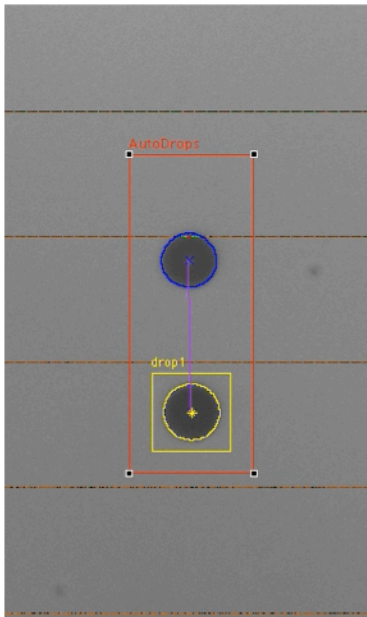


For Trajectory Measurement

Fully integrated, fully controlled system for drop-in-flight analysis.



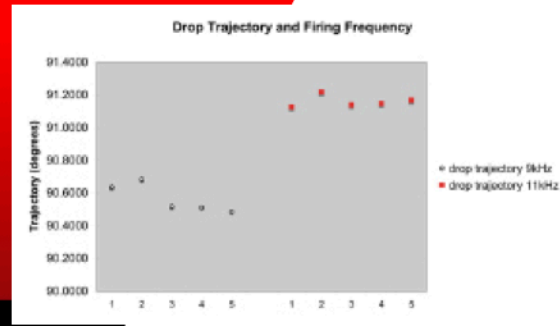
FEATURES AND BENEFITS

The JetXpert 3D system can be used to fully characterize jet trajectory performance to drive optimization of fluids and deposition systems

- Compact table-top system footprint for use in labs and production
 - Simple calibration procedure (calibration required after change in magnification)
 - Measurements of drop stream trajectory achieved via two images captured simultaneously by two cameras offset by 90 degrees
 - Remote system actuation via TCP/IP library allows full integration of system into existing production and workflow
- Full trajectory analysis of a single jet is possible through the use of a two camera system where two orthogonal "planes" are created, one for each camera position.
 - Trajectory can be reported relative to the pixel buffer or to a secondary reference image or value.

JetXpert 3D benefits include:

- **Fully integrated, 2-camera unit**
- **Drop visualization and analysis**
- **Custom configurations are available**



2-Camera Image Capture System

In order to fully characterize jet trajectory, JetXpert 3D uses two cameras offset by 90 degrees to image the drop stream in silhouette. Using two cameras allows for full projection-based trajectory analysis.

For each camera, a light source is positioned behind dispensed droplets and the camera is positioned in front to capture images of drops in flight in silhouette, allowing for evaluation of translucent and opaque fluids.

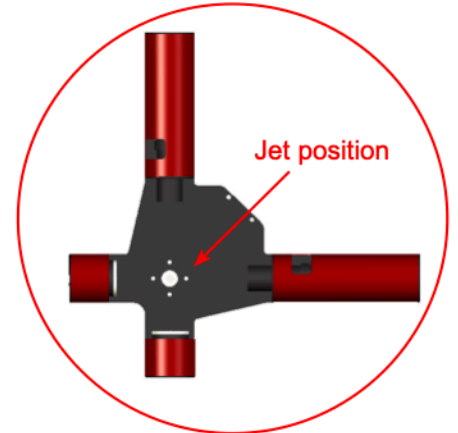
System Control

Illumination level control and compensation, image capture, and image analysis are all managed via the ImageXpert software. Remote control of the system is available via a TCP/IP library.

Benefits

Measuring the in-flight characteristics of fluid droplets under different conditions can aid in optimizing dispensing system settings, fluid formulation and system performance.

Users and manufacturers of printing or dispensing tips and heads, driver



electronics and actuators, fluids, and integrated material deposition systems can benefit from analysis of drops-in-flight.

System Configuration

Light source	LED strobe
Interface	Digital control of LED settings for repeatable drop imaging and analysis.
Cameras	Two black and white GigE cameras, each with manual focus.
Lens	Zoom lenses on camera assemblies (1-6mm field of view), proprietary optics on LEDs
Calibration	Calibration target with 1 micron accuracy.
Analysis	ImageXpert image analysis software
Images and movies	Images, image series & movies can be captured and saved. (Images saved as .TIFF , movies as .AVI)
Data	Data can be shown on the screen and saved to a file. Statistics are also available.
Communication	TCP/IP communication library is available for remote system control, image collection and data archiving.
Options	For R&D: Manual stages available with micrometers for dispensing head fixture positioning. Full motion system available for sequential analysis of all nozzles.
System power	Autoswitching 110-220V 50-60Hz

For full trajectory analysis of drops-in-flight

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