

ClearVu™ Vision

Programmable Zoom & Focus Vision

High magnification provides accurate alignment of substrates even if they have multiple levels and very small fiducials.

The **Programmable Zoom and Focus camera** allows the vision system to accurately align multi-level substrates and substrates with very small fiducials. ClearVu™ Vision vastly improves alignment accuracy in production environments.

Equipment

ClearVu™ Vision is an option for the fully automated MAX Series and DS Series™ dispensing platforms. With ClearVu™ Vision, these systems can focus on different substrate levels, plus zoom in and magnify small features for precision alignment.

Use the fiducial library in the GPD Global® FLOWare® software to store parameters for each fiducial pattern for future program recall. During program operation with ClearVu™ Vision, many parameters can be adjusted on the fly: Zoom, Focus, Illuminator Color, as well as camera gain and offset.

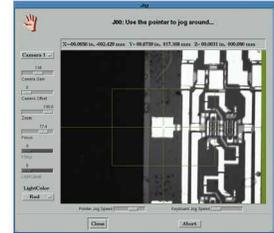
FLOWare® software also allows the operator to define separate parameters for visual inspection once a process has been completed. Inspection parameters can be set so an operator may view a larger area of the board at a lower magnification and adjust display parameters so they are appealing to visual inspection. Additionally, the standard FLOWare® software material library can set camera parameters for a specific material; this makes programming varieties of processes easy.



ClearVu™ Vision on a MAX Series Dispenser



Multi-Axis Illumination



0.005 inch Pad

GPD Global® offers additional illumination features compatible with ClearVu™ Vision, making it even more versatile across a wide array of substrates and applications:

- **Illuminator Color Control**
- **Backlit Automatic Calibration Station**
- **Multi Axis** - illuminates a component from a specific side.
- **Dark Field** - ring light with LED set at a low angle to capture surface features.
- **Full View Illumination** - combination of standard on-axis lighting and Dark Field illumination.
- **High Intensity Lighting** - single color illumination with high intensity to improve image depth of field.

Depth of Field at Zoom Levels

ZOOM LEVEL	DEPTH OF FIELD	
	mm	inch
0%	19	0.74803
100%	14	0.55118

Field of View at Zoom Levels

ZOOM LEVEL	FIELD OF VIEW AT 57 MM (2.25")		PIXEL RESOLUTION	
	mm	inch	mm	inch
0%	12.0 X 9.1	0.472 X 0.358	0.018	0.0007
25%	8.9 x 6.6	0.350 x 0.260	0.014	0.0005
50%	3.4 x 2.6	0.134 x 0.102	0.005	0.0002
75%	2.3 x 1.7	0.090 x 0.065	0.003	0.0001
100%	1.0 x 0.8	0.040 x 0.031	0.002	0.0001



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