

## THE FA-2000™ EMISSION MICROSCOPY SYSTEM

### Introduction

The Micromanipulator FA-2000™ Portable Emission Microscopy workstations, with their unique design, can be configured as a stand alone benchtop unit, be integrated to probe stations, or placed directly on a test head for package and wafer level analysis.

The FA-2000™ represents the latest technology in a compact and portable system suitable for analytical probe stations, ATE testers or benchtop configurations for frontside and backside testing applications all in one modular system design. This system offers a 1.4 million pixel high-resolution, low noise camera with super pixel/ binning option for higher sensitivity. The fast frame rate allows easy focus and positioning.

Gain flexibility with the FA-2000™ instead of being tied to the “big black box” requirement that image-intensified emission systems suffer from. Since bright light can damage an image intensifier, such systems must be interlock-protected from ambient light. This makes these systems bulky, expensive and difficult to use in non-traditional

setups. Overhead wafer sort applications, for example, are impossible with intensified systems. There is an inherent resolution limit imposed by putting the image intensifier element between the device under test (DUT) and the camera. Live positioning imaging is complicated, as well, by the intensifier/camera combination.

Some “Scientific Grade” cameras offer higher resolution by using high pixel count, small pixel size CCDs. Small pixels suffer from lower sensitivity, which is addressed by binning multiple pixel signals into “super pixels.” In short, to re-gain sensitivity, resolution is sacrificed.

The sensitivity of the FA-2000™ is determined by pixel binning. Longer integrations collect more photons, increasing sensitivity. Integration

time, and all other functions, are on-screen and need only a few clicks to use. Once the device is biased, it takes only a few seconds to a few minutes to complete the emission acquisition.

The FA-2000™’s CCD sensor resolution is 1376 x1040 (image file resolution is 640x480 pixels). The compact unit is thermoelectrically cooled for low noise. Without an intensifier, the direct view from camera to device provides high spatial resolution, low photon loss (high sensitivity), live positioning, low noise, flexibility, small size, ease of use, durability and lower cost.

Options include microscope high magnification objective imaging, backside imaging using the same camera as used for frontside imaging, patented vibration coupling for clear images on test heads, motorized positioning and a wide variety of dark shielding and mounting configurations, including the unique capability to acquire emission images in wafer sort environments (imaging down through the central bore of a test head).

Micromanipulator’s FA-2000™ is the ideal tool for emission microscopy; package, test head and probe station applications.

*Portable FA-2000™, free to move between workstations.*



**M Micromanipulator**

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