

# Next Generation of Visual Inspection Systems

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In recent years, many electronics manufacturers have been adopting the use of video inspection systems utilizing digital cameras to perform many of the visual inspection functions formerly performed with optical microscopes. Digital camera technology has improved to the point where the image quality now rivals that of optical instruments for many applications. The use of video instruments for the inspection of printed circuit boards, individual electronic components, solder joints, conformal coatings, etc. has been widely accepted. Some of the major advantages that video inspection systems offer has to do with the software, which gives the user the ability to capture, store, and share images and videos; perform image enhancement and manipulation; make side-by-side image comparisons; do annotation; and take linear and geometric measurements. In addition, high resolution video monitors of various sizes can be mounted at any height and viewing angle to reduce operator fatigue.

A more recent development has been the introduction of a new generation of compact, hand held digital microscopes. These versatile and surprisingly affordable instruments usually include integrated LED lighting, standard software (which offers many of the same capabilities mentioned previously), and an adjustable stand for fixed mount applications. Image display is usually accomplished through the use of external video monitors or computers connected via a standard USB cable.

Some of the latest versions of these instruments offer lighting options such as UV, Near Infra-Red, and polarizing filters (which reduce glare when viewing objects with highly reflective surfaces). The manufacturers of these instruments are also offering a growing list of optional hardware and software accessories to further enhance functionality.

It certainly appears that the future of video inspection system products looks very bright.

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