



# The new SWIR solution for your production

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PENANG MALAYSIA - June 2020 - ViTrox Technologies, a world-leading solution provider of innovative, advanced and cost-effective Automated Machine Vision inspection system and equipment for the Semiconductor and Printed Circuit Board industries, is pleased to introduce you with the latest technology, the SWIR (Short Wave Infrared) technology.

Have you heard of SWIR? SWIR technology allows us to see through what human eyes cannot see. By using SWIR, water vapor, plastic bottle, and certain materials such as silicon will be transparent in the captured image. SWIR imaging is used in a variety of applications including electronic board inspection, foods identifying and sorting, solar cell inspection, wafer inspection, and much more.

Normal visible light wavelength ranges from 380 ~ 780 nanometers (nm), where humans can respond to or visualize it. SWIR light is invisible or nonvisible with a wavelength of 1000 ~ 1700 nm. Wavelengths longer than visible wavelengths can only be seen by special sensors. Images generated by the SWIR camera allow you to see through what human eyes cannot.

ViTrox SWIR solutions are designed with the Military-grade camera to provide high definition vision inspection results. It is capable of inspecting inner defects such as inner crack, component missing, delamination, chip-off & etc. within the package devices especially WLCSP which is unachievable by using standard solutions.

The semiconductor industry has grown to become one of the world's largest industries which covers a wide variety of applications, ranging from processor and memory integrated circuits for electronics to solar cells.

Today, we would like to introduce SWIR solution that will solve your trouble during the wafer manufacturing process. Defects such as crack or chipping can easily be found inside or between wafers, so the quality of the camera to inspect the imperfections is crucial. Instead of using standard cameras that are capable of inspecting only the defects on the surface of a wafer, SWIR camera can do more! Images produced by SWIR solution allow you to see through the silicons and be able to detect crack, voids or other defects.

SWIR camera can be a great solution for die inspection process too! SWIR solution effectively detects defects caused by wafer dicing (before packaging), such as cracks which hide inside the silicon material.

The key value differentiation of ViTrox SWIR solution mainly is to inspect the inner defect of the device which standard vision is unable to capture with the standard hardware (lighting & camera). Below illustrates the image comparison of standard vision versus SWIR.

## About ViTrox Technologies

ViTrox is headquartered in Penang, Malaysia, and with offices in Asia, Germany, and the United States. Currently, ViTrox is well recognized as one of the world-leading automated Machine Vision inspection solution providers with an extensive installed base and sales & support sites in more than 40 countries worldwide.

Since its inception in 2000, ViTrox is committed to providing the most innovative, advanced and cost-effective Machine Vision solution of excellent quality to its customers through the integration of technology, people and strategic alliances. ViTrox offers a full range of automated 3D Machine Vision inspection solutions including Back-end Semiconductor Vision Inspection, Printed Circuit Board Assembly (PCBA) Inspection, Electronic Communication System, Intelligent Advanced Robotic Vision System, Embedded Electronic Solution, and Industry 4.0 Smart Solutions.

ViTrox serves more than 500 worldwide customers in over 40 countries, comprises Outsourced Semiconductor Assembly and Test (OSAT) companies, PCBA manufacturers, Original Equipment Manufacturers (OEMs), Original Design Manufacturers (ODMs), Electronics Manufacturing Services (EMS) providers and Contract Manufacturers (CMs) worldwide. In addition, ViTrox has installed more than 20,000 vision systems and over 2,000 inspection machines globally.

ViTrox received more than 70 national and international recognitions and awards for its outstanding performance in product development and corporate performance, as well as human resource development. Furthermore, ViTrox was named 4 times in a row as one of the 200 Best Under a Billion company by Forbes Asia in the year of 2011, 2015, 2017 & 2019.

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