



WORLD CLASS VISION SOLUTIONS



TORDIVEL



**Scorpion Vision Software®
eliminates your weakest link**



TORDIVEL

From the start up in 1992, Tordivel has been a partner for major companies in bringing the emerging Windows technology into both existing and new products. Tordivel has a global network of partners and distributors and head office in Oslo, Norway.

In 1996 a team of vision and image processing specialists was established to provide vision solutions. From 1997 to 2000 Tordivel installed a large number of inline advanced vision systems for mobile telephone inspection in Norway and Sweden.

Since 2000 our unique Scorpion Vision Software® has been the platform for vision systems and OEM solutions. Today Tordivel has users, partners and distribution globally. The company has highly skilled employees and work within the following business areas:

Scorpion Vision Software - Global distribution, training and support of Scorpion Vision Software.

Scorpion System Solutions - Delivery of vision systems in Norway and Sweden.

Scorpion OEM - Custom vision solutions based

on Scorpion Vision Software.

Our business strategy is to provide the industry with independent software for configuration, operation and surveillance of vision systems utilizing industry standard components and communication interfaces. Digital cameras connected to PCs via standard interfaces like Firewire has created a major shift in the vision industry from proprietary systems to open software solutions.

Scorpion Vision Software is distributed through partners. They provide local training and support for all types of users.

Tordivel has distributors in UK, Denmark, Finland, The Netherlands, France, Germany, Thailand, China, India, Taiwan, and USA.



Scorpion Vision Software® from Tordivel is an independent and open software tool for industrial vision. It is the best choice for the production engineer wanting to save cost, automate or secure quality. The system gives the user the choice of a small form factor with the Sony SmartCam or the power of a standard PC system.

Scorpion Vision Software is used in a vast variety of industries; automotive, wood, furniture manufacturing, food and drugs, robotics, packaging, energy and more.

Scorpion Vision Software solves tasks within robot vision, label and surface inspection, assembly verification, color identification and high precision gauging.

The system is founded on top of a standard Windows 2000 / XP PC platform - thus a flexible alternative to proprietary vision sensors or custom vision systems.

It is cost effective benefitting from the processing power of the Intel processors, low cost and high quality firewire cameras and the possibility of connecting multiple cameras to one PC.

Scorpion Vision Software is packed with features and details making it easy to develop and maintain robust industrial vision systems.

Every single feature is specified, implemented, tested and verified based on experience obtained on the factory floor.

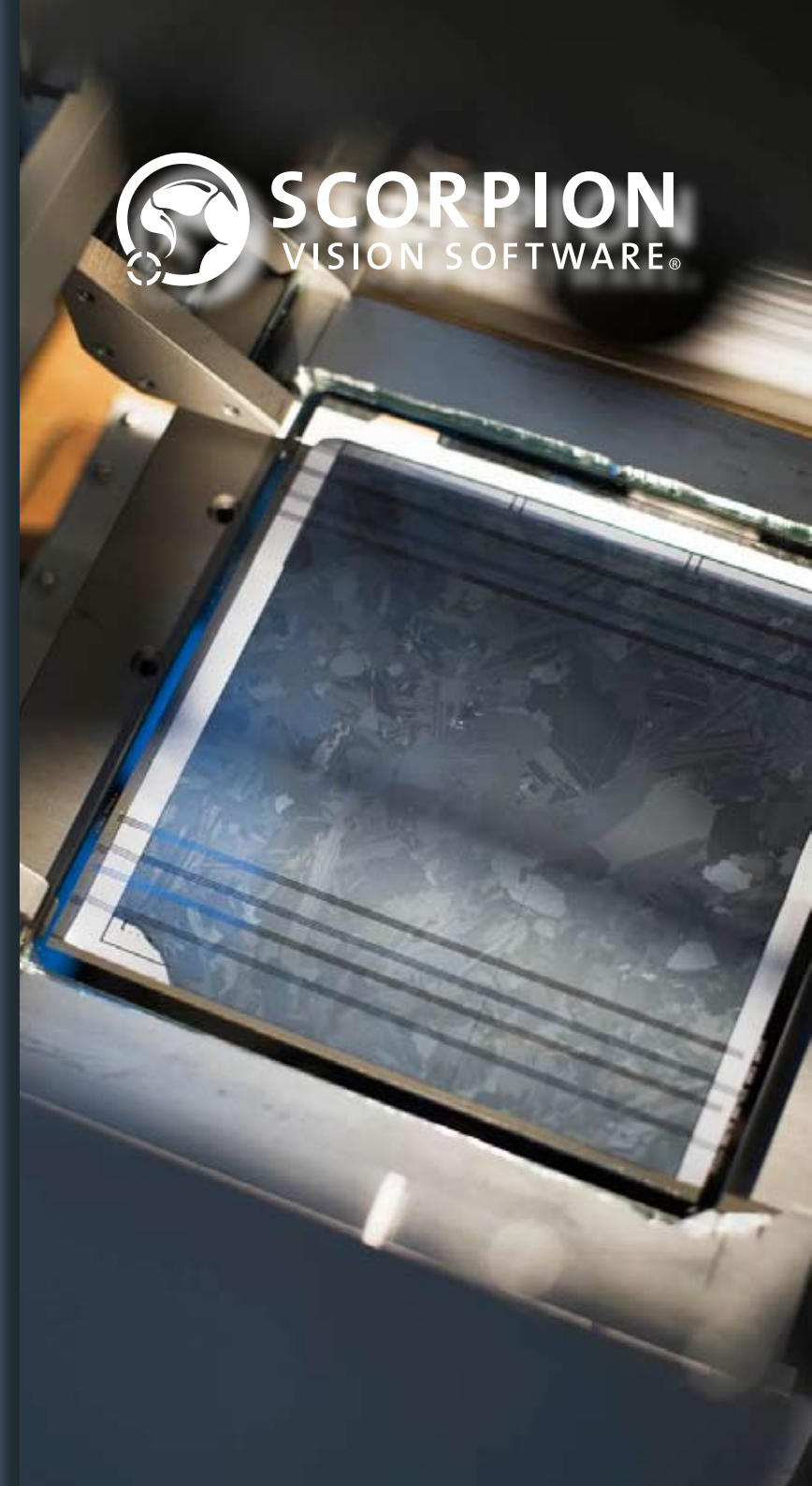
Scorpion Vision Software offers large reduction in the development time and maintenance cost for machine vision systems.

Sony is one of our industrial partners.

Pascal Wojciechowski, Division Director, Sony ISS said: "Customer satisfaction is our prime focus. We will only team up with partners that provide the highest caliber solutions to match our camera's performance and capabilities."



SCORPION
VISION SOFTWARE®



Scorpion Vision Software® infinitely flexible



Robot Vision is one of Scorpion Vision Software's focus areas. Scorpion gives the robot the ability to see.

Flexible automation means robots, automation and vision working together. This reduces cost and increases the flexibility and possibility to produce several product variants in one production line at the same time - 24 hours a day - with profits. The vision system's ability to locate and identify objects are critical elements in making these systems. Scorpion Vision Software has been used in robot vision and inspection system for many years. Scorpion has a complete toolbox of robust and reliable image processing tools needed for robot vision, gauging and assembly verification including high accuracy and sub-pixel object location tools.



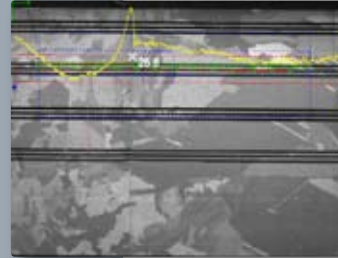
Sony Desktop Robot's winning combination of superior performance and compact size, combined with Firewire cameras and Scorpion Vision Software are redefining the meaning of optical inspection systems. Advanced inspection systems are put into operation in the matter of days using only standard components.



Scorpion Desktop AOI (Automatic Optical Inspection) is a flexible general purpose vision system ideal for sample control of products. A ready to use unit consists of a Scorpion license, a standard firewire camera, a macro lens and illumination and an optional Sony Desktop Robot.



Multicamera Assembly Verification with Scorpion Vision Software has been used for years in the automotive industry in Norway and Sweden. Common tasks are robot vision, inspection, high precision gauging and multicamera assembly verification. The combination of multiple digital firewire cameras and Scorpion Enterprise has proven a reliable platform for seat, cockpit and door inspection.



The Solar Cell Wafer Sawmarks Measurement System measures wafers with low noise, high sensitivity, high repeatability and high resolution. Unique shadow measurement techniques, cancelling the effects of the crystal pattern, and Scorpion Vision Software are used to find the wafer sawmarks.

The system is based on the third generation 100% automatic quality control systems running at REC Wafer's plants in Glomfjord and at Herøya, Norway, since 2001.



In close cooperation with Sony, Tordivel has integrated the Scorpion Vision Software into the XCI-SX1 SmartCam.

The open architecture Sony SmartCam is the perfect companion for Scorpion Vision Software. The combination of high resolution images and Scorpion Vision Software's world class gauging tools is ideal for high precision measurements and robot systems.

The color identification system picks the best color match from a set of reference images and calculates the color coverage of the inspected item. The SurfaceAnalyzer is a unique tool performing color, texture and shape classification of multiple objects.



The Scorpion Image Logger is used to digitize, tag and store video data from multiple video sources in real-time.

Scorpion can acquire digital images from a broad range of commercial video cameras, optionally tagging the images with real-time data from external data sources such as GPS receivers and OPC devices, before storage to JPG or BMP disk files. Successful applications have been created using Scorpion with GPS receivers for tagging real world data to images or documenting lack of defects prior to shipments in automotive traceability environments.

Here an Image logger system is collecting data for a national road information base. A camera positioned on the roof of a car captures an image every 20 meter. The GPS coordinates are saved with the image.



The Laser Profile Measurement System is a single camera 3D measurement system dedicated to the verification of object geometry and dimensions. Here the laser profile is generated on the edge of a medium density particle board.



Scorpion Barcode is a camera based automatic barcode reader application supporting multiple readers on one PC. Scorpion Barcode is a Scorpion Lite with an integrated Euresys EasyBarcode™ reader software module.



Scorpion MatrixCode is a camera based automatic 2D MatrixCode reader application supporting multiple readers on one PC. Scorpion MatrixCode is a Scorpion Lite with an integrated Euresys EasyMatrixCode™ reader software module.

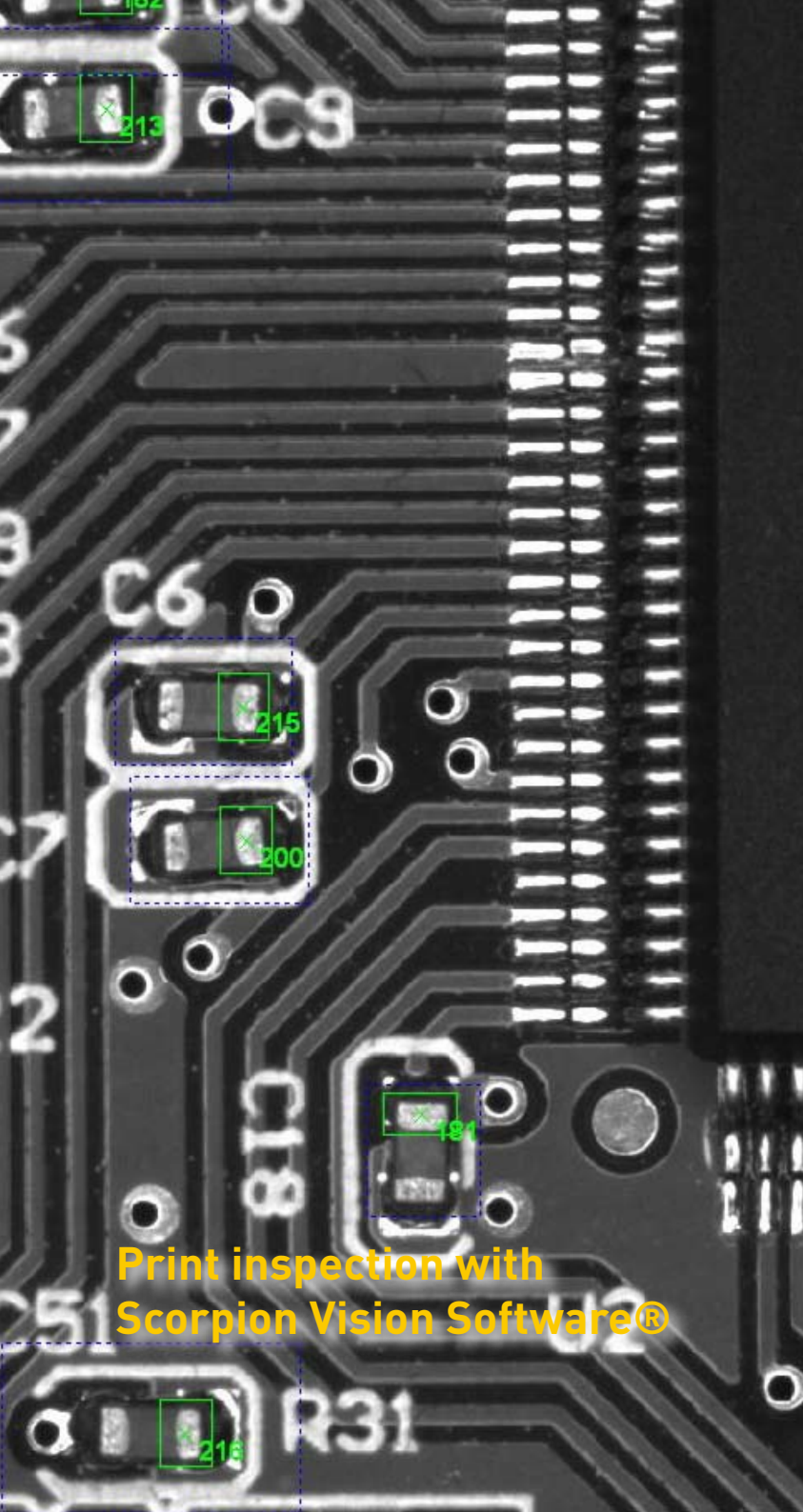
The Scorpion 3D robot vision system is ideal for volume measurement and robot vision in three dimensions. When measuring volume you get a 3D image in x,y and z-coordinates of your item as result.

Combine the system with a robot, and the robot can see! You can now pick products from a pallet in three dimensions. Here a gas bottle and the corresponding 3D image used to locate the handle.

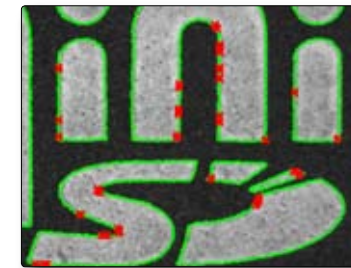


Scorpion aim for automatic robot bin picking and 100% product inspection with 3D measurement techniques. Tordivel is heavily involved in research projects making 3D measurements possible for direct production line inspection and for use in product development.





Print inspection with
Scorpion Vision Software®



Scorpion Vision Software contains an extensible set of configuration tools. Combining these tools, Scorpion Vision Software targets both the simple and the advanced inspection tasks. The tools perform the following functions:

Pattern Matching, Blob Analysis, Morphology, Metrology, Calibration, Color Identification, Shape Sorting, OCR & OCV, Bar Code & Data Code Reading, Polygon Matching with sub-pixel accuracy

Powered by PolygonMatch™. In print quality verification it is important to fit the polygon before searching for errors. Scorpion Vision Software's PolygonMatch™ technology ensures sub-pixel resolution independent of rotation, scale and perspective. In printed circuit inspection it is used for optimal and robust fiducial object location.

For more information please contact:

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