



## SCORPION VISION SOFTWARE® BASIC

Scorpion Basic™ is a cost-effective, proven, robust and complete configurable multi-camera 2D and 3D machine vision system.

Scorpion Basic™ is a product in the Scorpion Vision Software® family; an independent and open software tool for industrial vision. The unique rapid machine vision framework speeds up the development a factor of 10 compared to a standard library approach.

### APPLICATIONS USING SCORPION BASIC

#### 2D AND 3D ASSEMBLY VERIFICATION

Scorpion Basic™ is used in 2D and 3D assembly verification. The combination of multiple cameras, color processing, unique reference systems, high accuracy and 3D makes it well suited for the automotive and pharmaceutical industries.



*Assembly Verification in the Pharmaceutical industry*

#### OBJECT AND COLOR IDENTIFICATION

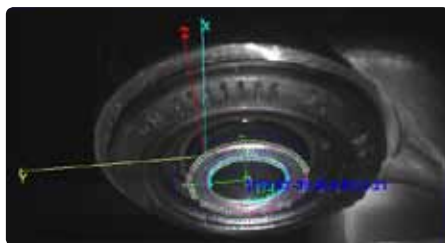
It is easy to make identification systems with Scorpion Basic™. The powerful toolbox consists of a collection of tools: Blob4 with its unique feature classification, TemplateFinder3 with multiple templates and subpixel accuracy and ColorMatcher can be the basis for simple and advanced identification systems.

#### ROBOT VISION AND ROBOT INSPECTION

The software is widely used for Robot Vision and Robot Inspection. It is designed for OEMs and System Integrators. A proven 2D toolbox is the starting point. Depending on the requirements, capabilities and features are added e.g. Singlecamera 3D with MonoPose3D™ or 3D laser triangulation.

#### ADVANCED 2D AND 3D CALIBRATION

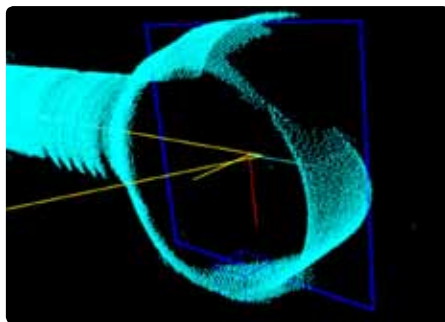
Scorpion Basic™ offers fundamental performance gain and cost saving with sub-pixel measurement algorithms. The software can produce more accurate and robust systems with a web camera resolution 640x480 and a plastic lens than software using a 4 mega-pixel solution with high quality lens and pixel-based algorithms. 3D camera calibration adds the capability of working in the right 2D plane.



*With a 3D references Scorpion Basic™ measures 3D in 2D images*

#### FREE ACCESS TO OPEN-SOURCE AND OPENCV

The Scorpion Vision framework contains the most powerful Python scripting engine. We have provided easy to use access to Intel's free machine vision library OpenCV 2.1. Python also gives access to NumPy and to the .Net framework. With these features almost everything can be added to Scorpion for free - like custom GUI, database access and reporting functions.



*3D visualisation is an integrated part of the Scorpion Vision Framework*

#### MULTIPLE VISION SYSTEMS ON ONE COMPUTER

With Scorpion Watchdog it is easy to run multiple systems on a single computer. This is a simple way to exploit the power of multicore CPUs. The multicore option can speed up a single application by a factor of 3 on a quad-core processor.

#### SCORPION BASIC™ IN A SMARTCAM

The Scorpion Basic™ version supports the Windows XPe operating system and SmartCameras from Sony. These cameras are well suited for 2D and 3D Robot Vision.



*The Scorpion Basic combined with a SmartCam gives you a compact and cost-effective solution. Ideal for high precision gauging and 2D and 3D Robot Vision.*

#### CAMERA SUPPORT

##### STANDARD CAMERA INTERFACE - SUPPORTING MULTIPLE CAMERAS CONNECTIONS

The open Scorpion Vision Software architecture allows connections to high resolution firewire cameras, GigE cameras, low cost USB cameras, cameralink linescan, 3D cameras and more.

The camera support includes advanced features like dynamic shutter, encoder control and hw-triggering. Only limited by the PC capacity, any number of cameras can be connected and controlled from one Scorpion application.



## SCORPION BASIC™ TOOLBOX

### CONFIGURABLE TOOLBOX

Scorpion Basic™ offers a large toolbox of 70 tools. The tools are divided into the following groups: Basic, Data, Edge, Geometry, Reference and Advanced.

All tools have user friendly interfaces and require no programming skills.

With the Geometry tools, new points and lines can be constructed and measured from detected details. Reference tools handle rotation and gauging in engineering units.

### MULTIPLE PRODUCTS

It is easy to support and extend Scorpion Basic to support recipes and multiple product selection.

### FAST CONFIGURATION WITH POINT & CLICK

Enhanced Point and Click for defining ROI, polygon models, reference images and templates significantly speeds up tool creation.

### OPTIONS

The powerful Scorpion Basic can be extended by adding 3D capabilities and all the most powerful tools found in Scorpion Vision Software.

Tool upgrade prod. no. 10-091, 10-094.

### CAMERA AND RESOLUTION UPGRADES

Additional camera licenses and resolution upgrades can be added to the Basic License with limitations.

Prod. no. 10-090.

For more information:



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VISION TOOLS			
Basic	61	Blob1	
	60	Blob3	
	54	ColorMatcher	
	59	Goto	
	74	ImageCombiner	
	55	ImageConverter	
	129	ImageExtrema	
	77	ImageFilter	
	147	ImageMixer	
	75	Intensity	
	1	Logic	
	113	PolarUnwrap	
	3	PythonScript	
	102	Separator	
	21	SimpleMath	
Data	86	Classifier	
	93	DataImport	
	66	ExternalData	
	71	ExternalDictionary	
	38	ExternalLine	
	14	ExternalLogic	
	39	ExternalPoint	
	76	ExternalPolygon	
	2	ExternalScalar	
	40	ExternalText	
	86	Classifier	
	4	LinearScale	
	18	LogicPack	
	92	Toolbox	
	94	ToolImport	
Edge	67	CircleGauger	
	16	LineEdgeCaliper	
	17	LineEdgeFaults	
	8	LineEdgeFinder	
	41	LineFinder	
	35	RadialArcFinder	
	65	WidthGauger	
	Geometry	51	Angle
		64	CenterLineFromLines
		124	CircleCircleIntersect
123		CircleLineIntersect	
31		LineFromPoints	
136		MoveLine	
135		MovePoint	
134		MovePolygon	
28		NearestPointOnLine	
68		NormalLine	
29		PointFromLines	
30		PointOnLine	
27		PolarLine	
Reference		15	Calibrator
		32	ChangeLineReference
	33	ChangePointReference	
	83	ChangeReference	
	9	ExternalReference	
	69	LineReference	
	131	ModifyReference	
	10	MoveReference	
	12	PointLineReference	
	11	ScaleReference	
Advanced	80	ColorAnalyzer	
	57	ColorSegmentor	
	70	ImageResampler	
	47	MultiBlob	
	62	PolygonMatch	
	43	TemplateFinder	
	44	TemplateFinder2	

OPTIONS		
3pty tools	72	EasyBarCode
	73	EasyMatrixCode
Edge	89	LineFinder2
Advanced	53	TextureMatcher
	63	TemplateFinder3
	84	PolygonMatch2
	87	Blob4
	128	SingleLineFinder
3D Basic		All Tools
FEATURES		
RS 232		
TCP/IP		
OPC Client		Option
Multicore support		Option
<b>CAMERA</b>		
Number of camera licenses included		1
Add on camera licenses		Option
Number of instances included		2
Add on instances		Option
Maximum image resolution included		SXGA 1280 x 1024
Resolution upgrade		Option
Image file simulation		Yes
<b>ADD ON PRODUCTS</b>		
Scorpion Watchdog		Option
Scorpion Coordinator		Option

### GENERAL SCORPION FEATURES

All Scorpion products has a set of features included. See the Scorpion Product Data sheet for details on camera interfaces, communication with external systems, the operator interface, actions, the toolbox, Python and more.

### SCORPION OPENCV AND LITE

Scorpion OpenCV and Lite are compatible products with Scorpion Basic™. For less demanding applications they are more cost-effective.

### OEM AND RUNTIME PACKAGE

Scorpion VisionX™ is the OEM or Runtime system for Scorpion Basic™ applications.

### FIRST CLASS SUPPORT

The software is backed by an extensive set of sample system profiles to help the user understand the power of Scorpion Basic™

### STARTUP AND TRAINING

A large set of Do It Yourself tutorials are available to learn how to configure a Scorpion system, to configure the toolbox and communicate with external systems.