



## SCORPION VISION SOFTWARE® COLOR IDENTIFICATION SYSTEM

The Scorpion Color Identification system is a camera based system for color identification. The system picks the best color match from a set of reference images and calculates the color coverage of the inspected item. This is illustrated below using a piece of painted wood.



*Scorpion Color Identification System*

### System Description

The Scorpion Color Identification System consists of the following parts:

- Junction Box with color camera
- FireWire Interface Board
- Scorpion Vision Software CD and license key
- RealVNC remote pc operation
- Scorpion Color Identification Profile

The system is connected to a Personal Computer with a FireWire cable. The object must be evenly and consistently illuminated. The light source is not part of the kit.

The system communicates with external systems using RS232, OPC and TCP/IP by sending start and stop, status and measurement data.

### Scorpion Vision Software CD

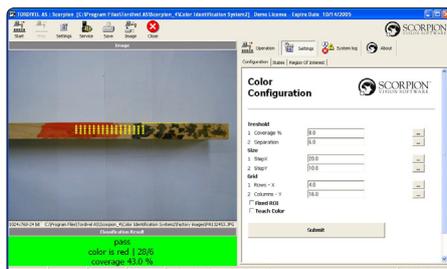
Scorpion Vision Software® is distributed on a CD with the following contents: Scorpion Vision Software, System Requirements, Scorpion Setup Program, Camera drivers, Documentation and Support programs.

### Scorpion Color Identification Profile

The profile consists of the following elements:

- Color Configuration screen with:
  - Threshold values
  - Size and width of color sensors
  - Navigation of ROI
- LineFinder – finding reference edge – handles translation and rotation of item
- Color matching
  - ColorMatcher tool
  - ColorMatcher Business Logic in Python Script

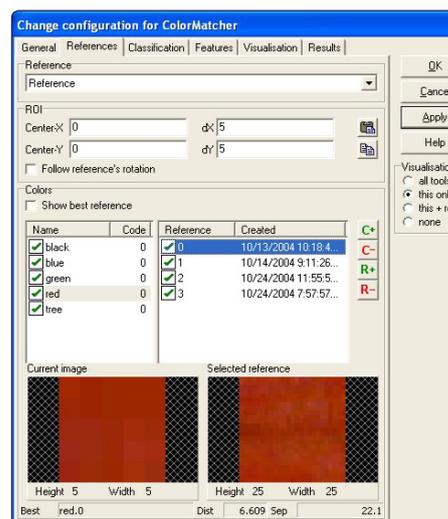
The Color Identification profile is contained in a zip file for easy update or remote support through e-mail and internet.



*Scorpion Color Configuration*

### Image processing concept

- The system measures the color in an N x M matrix
- The matrix may can be fixed or made to refer to an edge on the item
- Based on the number of accepted colors a coverage is calculated
- The system thus handles that a color is only partly present



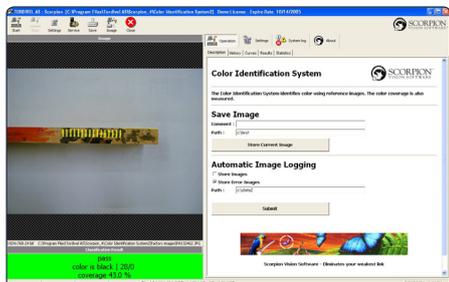
*Teaching colors with ColorMatcher*

### Teaching colors with ColorMatcher

- The system is trained after installation using reference images (colors)
- It is possible to define an infinite number of colors
- Each color may have an infinite number of reference images
  - Multiple references are used to describe color variation within one color – the variation may be due to physical variations or real color changes



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Scorpion Color Identification System  
User Interface

### User Interface

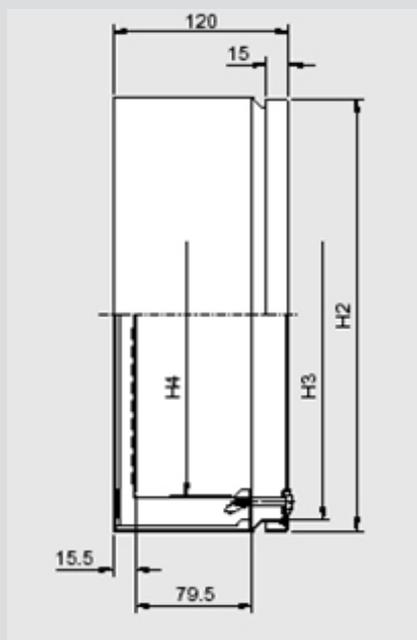
The following information is available in the user interface:

- Camera image
- Inspection result with indicator panels
- Description - Web page that contains a short description of the identification task
- History - displays the latest inspection results
- Curves - give a graphical view of measured values
- Results - show measured values of the latest inspection
- Statistics - give a periodical view of the inspection results
- Color Configuration parameters and ROI navigation buttons

### TECHNICAL DATA

#### Junction Box System

- Rittal Junction Box with mounting plate
  - o Width 150 mm
  - o Height (H2) 150 mm
  - o Depth 120 mm



#### Camera System

- Imaging Source DFK21F004 color camera 640x480
- 4.5 m FireWire cable – option up to 10 meters
- Unibrain Fireboard Red IEEE-1394 Interface card

#### Software

- Scorpion Vision Software
- Scorpion Color Identification

#### Profile

- Scorpion Setup program
- Camera drivers
- Support programs

#### Speed

- Up to 10 identifications or colors / second

#### Communication

- RS232 - PLC
- TCP/IP
- OPC including Siemens Profibus
- Advantech IO Modules
  - o RS485
  - o TCP/IP

#### Data Export

- Number
- TCP/IP
- RS-232

#### Remote Operation

- RealVNC over tcp/ip

#### Operating System

- Windows 2000 / Windows XP

#### Minimum Requirements

- Intel Pentium III 800 MHz
- 128 MB of RAM
- 10 MB free hard drive space

#### Language Support

- English

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