



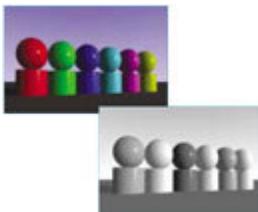
Micro- Imagechecker AX30

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Overview AX30

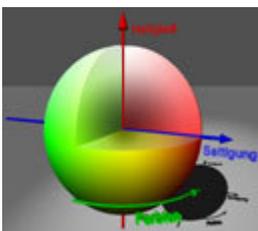
AX30: Color image processing made easy

The AX30 color image processing system is the elementary version of the AX40 system. They are both based on the same hardware, but the software is different. The AX30 is purely a color image processing system. The operation and the range of functions were deliberately kept simple, so that even inexperienced users can quickly and easily achieve their aim.



Color image processing has many advantages

Many inspections can only be implemented with a color system. The colors green, cyan or yellow can hardly be distinguished using grey-scales, for example. In many cases, a color checker works with greater certainty than a grey-scale system, because the color system offers not only brightness, but also hues and their saturation for evaluation. This also reduces the effect of environmental light.



Color processing similar to the human eye

The Micro-Imagechecker AX30 processes colors with the sensitivity approaching that of the human eye. Similar to the human eye it uses the following parameters to evaluate the colors of an object:

- Luminance
- Saturation
- Hue

This makes it possible to detect even slight color differences.

Software

The AX30 is optimized to make it really easy to operate. But it still has a

wide range of functions. So as well as the common inspection procedures, there is even contour-based pattern matching available. The AX30 is often used for tasks relating to:

- Presence and assembly checking
- Alignment and position determination
- Type distinction and sorting tasks
- Color checking



So easy to operate

When the AX30 Imagechecker was being developed, great emphasis was put on ease of operation. A keypad is used to select the required settings in the clear menu structure. The user is given additional support from numerous automatic functions. Tasks that occur frequently, such as choosing the correct color or adjusting white are simple via teach-in.



Powerful evaluation procedures

The AX30 has a wide variety of inspection procedures available. Edge finding, presence checking or logical evaluations are just some of the options. Optimized algorithms ensure maximum speed (e.g. edge finder 200x30 pixels in 0.6ms). The AX30 also has contour-based pattern matching available. This allows positional determination or 360° positional adjustment to be simple and reliable.

Clear documentation

The documentation of settings and measurements are very important in the field of quality assurance. AX30 offers direct measurement output on PC or PLCs as well as the storage of images and projects on normal CompactFlash™ cards.



With a single touch screenshots can be made. CompactFlash™ card* stores images, projects and system settings. The 512 MB card can store more than 500 images or thousands of projects.

Additional software features

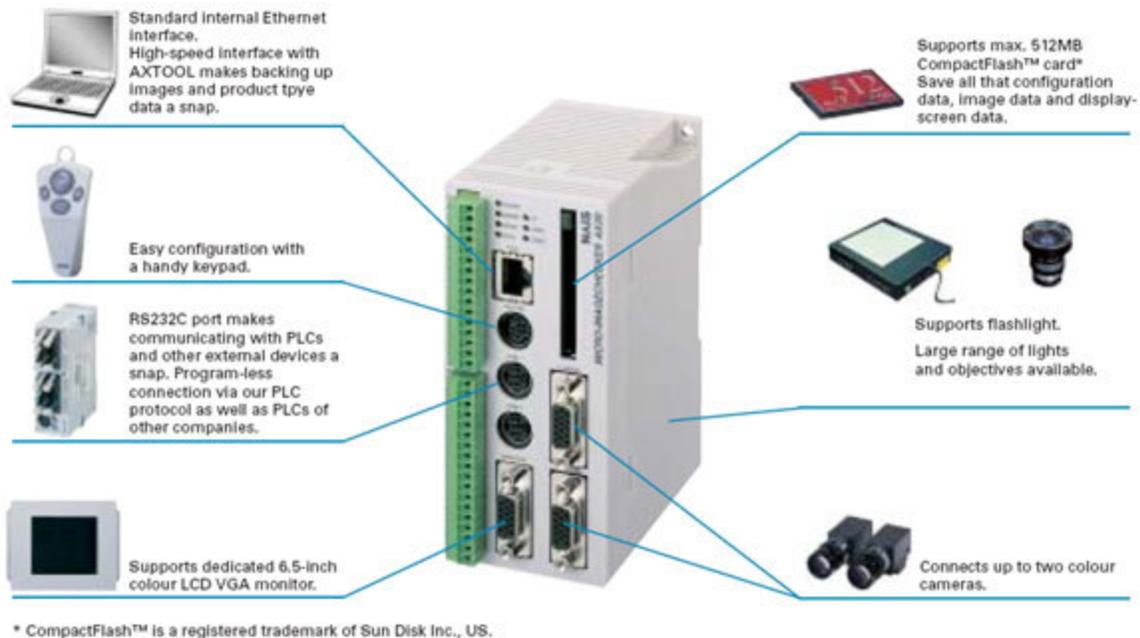
The software integrated in the unit has a great many useful functions. These include:

- An integrated real-time clock
- Password protection
- Bilingual software



Hardware

The AX30 is based on very powerful hardware, which allows fast inspection with up to two cameras. Universal interfaces make for easy integration and extensive documentation opportunities.



Powerful hardware

Two color cameras can be connected to the AX30. Thanks to its vast computing power, the AX30 Imagechecker can accommodate and process both cameras at the same time. This even allows images to be stored in real time. This is particularly useful for documentation purposes or for error analyses.



Universal interfaces

Thanks to its versatile interfaces, the AX30 fits into any system. It has 27 Opto-decoupled NPN/PNP inputs and outputs. Measured values can be transferred via the RS232 interface. This also emulates the protocol of the various PLC controls, making it possible to connect directly to a PLC. The Ethernet interface with [project management software](#) allows access to image and project data.



CompactFlash memory card

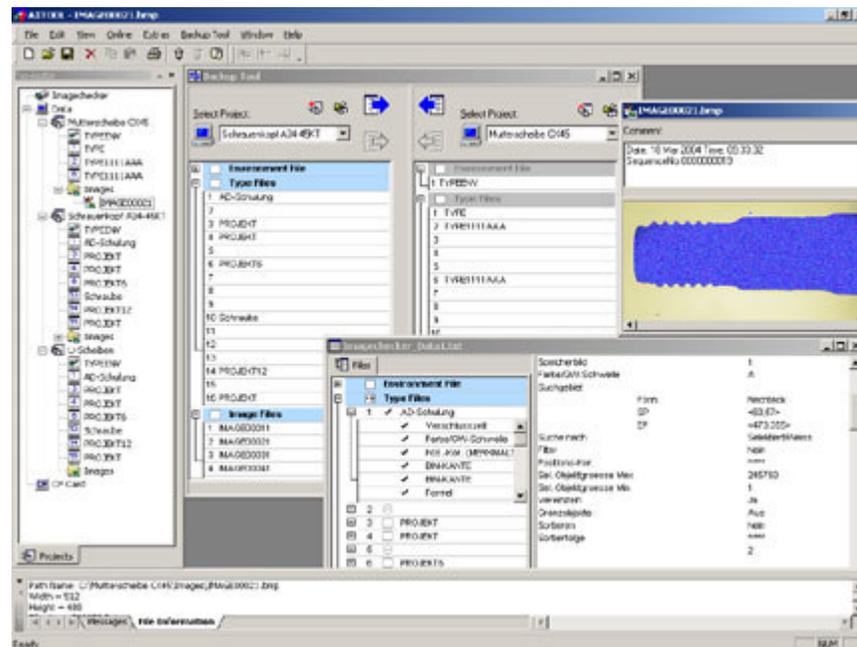
Images, project data or screenshots can be stored on a standard CompactFlash card. A 256 MB card has sufficient space for up to 360 images or several thousand projects. With the card, it is easy to transfer the data to other Imagecheckers or to store it straight onto a PC.

Project Manager Program AXTOOL

This new software tool makes it very convenient to administer and organize your AX projects comprehensively by drag & drop. AXTOOL allows direct access to AX project data and images. It is easy to back up and to restore AX inspection program information from/to your computer and to organize this data. An integrated image viewer allows you to display and print out saved

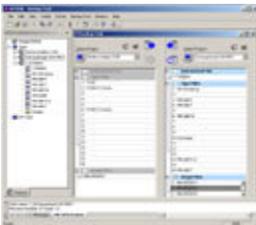
images. Last but not least the 'Documenter' gives you a detailed insight into each AX inspection program and simplifies project documentation and archiving.

[Download AXTOOL here](#)



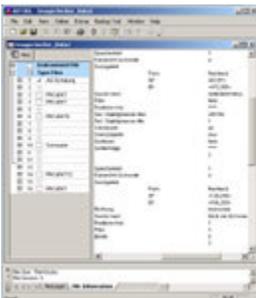
By using AXTOOL you can:

- Copy / move / delete images and set data
- Save and print images on a PC
- Check the configuration of all projects and save as Excel-compatible files
- Backup and restore all AX30/40 data



Backup program

With the integrated backup program, it is easy to create backup copies and save them to a PC or on diskette.

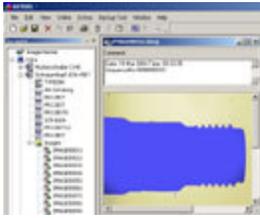


Project view (Documenter)

The Documenter gives you a detailed look at your inspection program. All the settings, such as the inspection elements used, their parameters, camera data or evaluations, are accurately recorded. The tabular format allows you to continue processing directly in Excel, for example.

Image view

The integrated image view gives direct access to images in AX30/AX40. You can view them, store them or print them out on your PC. There is also a



line of information to tell you the date and time at which the imagechecker saved the image.

Specifications

- specs/software
- specs/hardware

Software

	Software
Number of projects:	16
Modes of Evaluation:	
Positional Adjustment	2 x 1 Positional Adjustment contour matching (360°)
Comptage de pixels :	2 x 15 outils Form : rectangle, polygon, ellipse and masque
Measurement :	2 x 15 outils Form : planes and lines
Comptage :	2 x 15 outils pour compter le nombre d'objets Form : rectangle, polygon, ellipse and masque
Detection of position (centre) :	2 x 15 outils pour déterminer le centre Form : rectangle, polygon, ellipse and masque
Detection of Position (contour) :	2 x 1 outil pour déterminer la position et l'angle des objets Form : rectangle
Statistics	16 Registers per project
Image Storage	Max. 16 images/camera. Saved in real-time without time-delay, with date of saving indicated

Hardware

	Main unit
Resolution:	512 x 480 pixels
Color processing:	2 x 8 colors
Interfaces:	
Serial:	COM port: RS232C (max. speed 115.200 bps)
Parallel input:	13-point input, 12 to 24VDC bi-directional input (NPN/PNP) photo-coupler

Parallel output:	14-point output, 12 to 24VDC photo-coupler output (NPN/PNP)
Ethernet:	100Base-Tx, 10Base-T for project management software AXTOOL
CompactFlash™	Memory card; type I; max. 512MB saves project data, images, screen shots, system configurations, etc.
No. of cameras connectable:	Max. 2
Visualization:	1 color-VGA connection
Rated voltage:	24VDC
Rated current consumption:	< 0.9A
Operating temperature range:	0 to 50°C (no frosting or condensation)
Weight:	Approx. 450g

Camera	
CCD sensor:	1/3" CCD sensor, 659x494 square pixels
Lens mount:	C mount
Scanning times:	1/30s, 1/100s, 1/250s, 1/500s, 1/1.000s, 1/2.000s, 1/4.000s, 1/10.000s
Rated voltage/Current consumption:	12VDC / 0.13A supplied from controller
Operating temperature:	Guaranteed performance range 0 to 40°C Allowed operating temperature range: 0 to 50°C (no frosting, no condensation)
Vibration resistance:	10 to 55Hz; 1 sweep/min; vibration width 1.2mm; 30min each in X,Y,Z directions
Shock resistance:	700m/s ² ; 3 times each in X,Y,Z directions
Weight:	Approx. 70g (excluding camera cable, lens and camera mounting brackets)