

vision

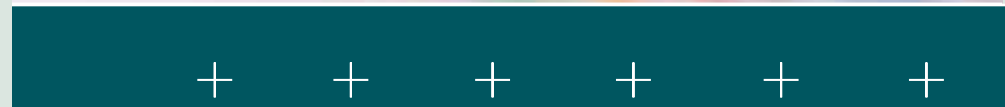
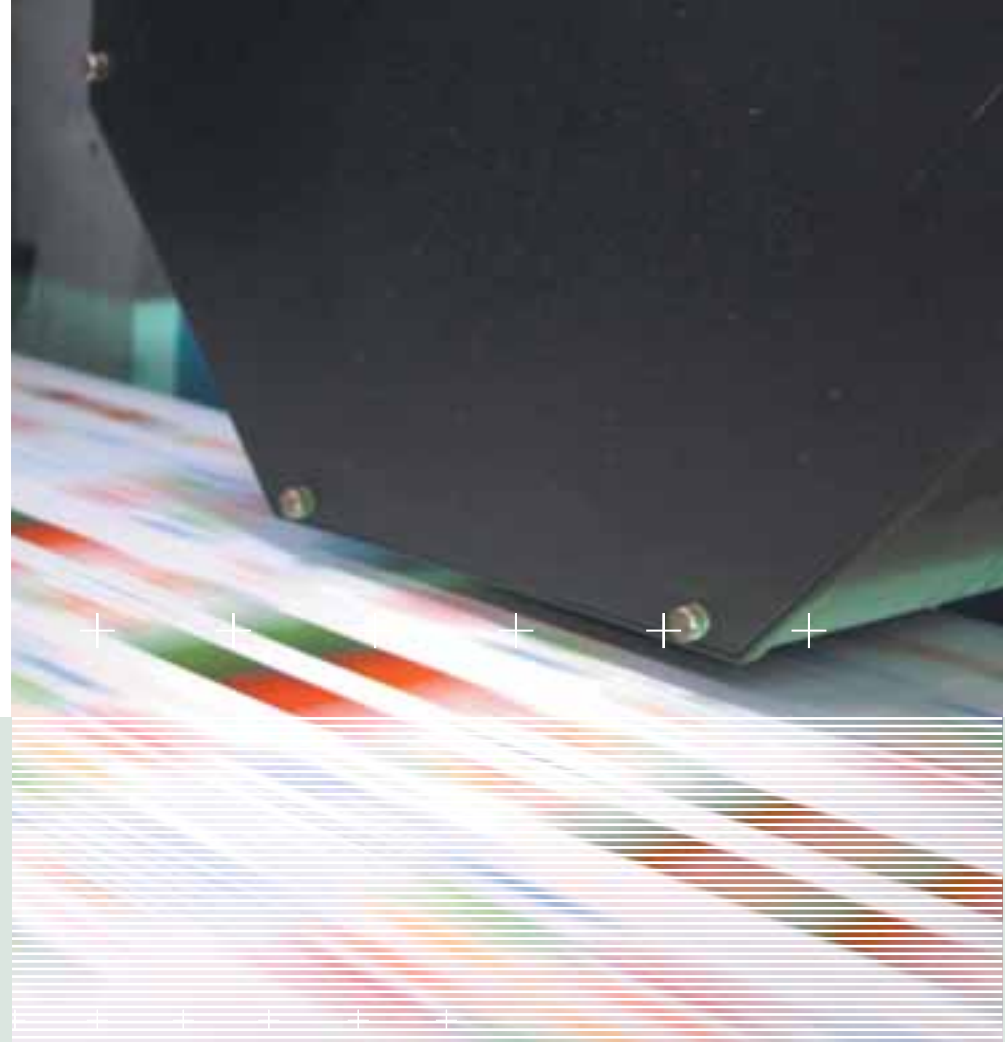
Seeing What's Important



eltromat – since 1960 we have developed and produced control equipment to optimize printing processes. We are an innovative partner of machine manufacturers and printers. Our products are installed in many printing companies that have high demands regarding efficiency and quality.

eltromat products are applied to rotogravure as well as flexo, offset and screen printing processes. A modular concept allows installations from the easiest web viewing system up to a complete 100% inspection system. Upgrades are easy and a great value.

Please feel free to ask about reference installations.



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THE EYES OF THE PRINTER


- _ QUICK TO PRINT
- _ MINIMIZING WASTE
- _ IMPROVING QUALITY
- _ PREVENTING COMPLAINTS
- _ EASY TO OPERATE

- = INCREASING PRODUCTIVITY
- = REDUCING COSTS

The electronic inspection of web fed printing processes is indispensable in these days. The automatic inspection for recognizing print defects is one invaluable tool we provide.

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Electronic view and inspection systems made by **eltromat** have proven their reliability and usefulness in daily use for many years. The systems were developed through customer demands and are extremely efficient and reliable. Applications range from 'one camera – one position control' to program-controlled 'multi camera – multi position control', from master/online image comparison to Top to Bottom web inspection. Many other features, including automatic inspection, are available.

→	drive	register	vision	colour	flow
			web video_3000 barcode module inspection module TTB module	HighSpeed The speed and reliability of our systems is based upon the use of specially programmed highly integrated circuits that transmit at high speeds.	HighModular Our modular system technology offers open interfaces to eltromat's_register and _colour systems thus ensuring an easy upgrade by adding or exchanging hard- and/or software components.
	eltromat_vision is a modular part of the eltromat PrintQualitySystems offcon_3 , imcon_3 and meshcon_3 .				HighTouch Our systems are easy to operate by means of <i>TouchScreen</i> and <i>TouchFrame</i> .

THE GATE TO ELECTRONIC PRINT INSPECTION

The electronic print view or inspection starts with a *single* camera mounted onto a high-precision traverse bar installed parallel to the web. Any required area of the print can be seen and displayed on the monitor.

The operator defines position, zoom, iris, remaining time and sequence of the images to be displayed. As soon as the print is in good condition, master images can be stored for either visual comparison or fully automatic inspection (*optional*).



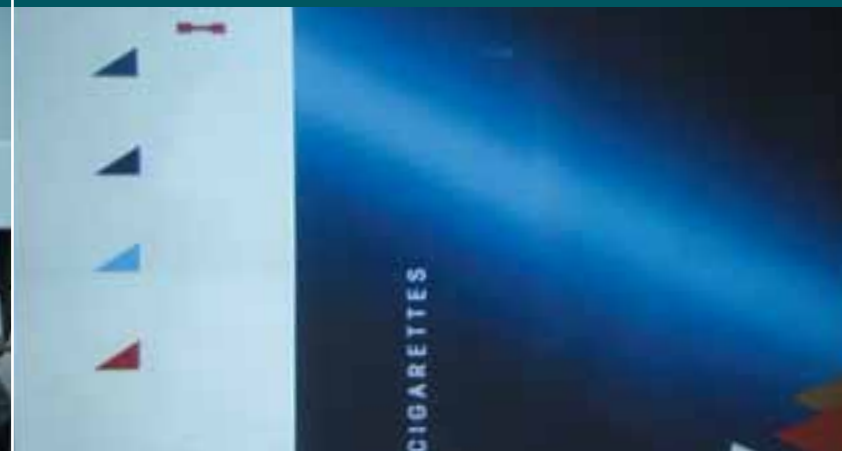


Image Capturing

We are using high-resolution 3-chip cameras that allow fast and precise image reproduction of the highest possible quality. A special arrangement of the strobe tubes guarantees an absolute homogeneous illumination of the image.

Image Reproduction

The image reproduction can take place in full screen mode or in split screen mode – with or without the corresponding master image.



TOUCHSCREEN – EASY TO OPERATE

Operation

A well structured menu allows easy operation with our *TouchScreen*: Entering, storing, recalling, modifying – all functions can be preset resulting in extremely short set-up times.



Main

Main menu showing

- Display of the current image capture
- Camera and strobe selection
- Display mode selection
- Quick store buttons for camera positions

Main advanced

Advanced main menu showing

- Display of the current image capture
- Camera and strobe selection
- Display mode selection
- Automatic mode on/off selection
- Position memory/master image memory
- Menu select of position, master or automatic mode browser

Automatic Mode Browser

Sequence of the camera positions for automatic mode

Position Browser

Select and modification of the video positions stored (via thumbnails)

Master Browser

Select and modification of the master images stored

Picture in Picture

Positioning of the windows for the picture in picture mode

web video_3000	1 Camera incl. standard illumination unit 1 Monitor 1 TouchScreen
Applications	Rotogravure, flexo, offset and screen printing processes
Camera	3-chip CCD, high-resolution 16-fold zoom lens, high-speed
Flash	Homogeneous illumination at web speeds up to 1,000 m/min.
Monitor Image Reproduction	17"
Monitor Image Reproduction	Full Screen real-time, Master/Online, Split Screen, Image rotation
Presetting	Position memory, including Zoom memory and Iris memory
Master Image Storage	10 master images minimum
Job storage	Variable size
Drive	High-precision traverse bar, high-speed positioning
Service Interfaces	Remote diagnosis via modem eltromat_register eltromat_colour

TOUCHFRAME – FAST POSITIONING

The printed pattern lies on the proof desk – a finger-touch of the operator is enough to cause the camera to approach that exact position on the running web. This feature is not a vision but a reality – realized by utilizing the most modern sensor technology.



TouchFrame

For faster definition of individual camera positions for several jobs **eltromat** developed a special *TouchFrame*. It can be supplied in any size of proof desk common in the market. Any finger-touch is recognized immediately – the co-ordinates of the selected position or area are quickly transmitted to the camera control.

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option: TouchFrame

rotogravure, flexo, offset and screen printing processes



What remains to be done is the easy definition of remaining time, iris and zoom. And again, the finger of the operator points to a critical area of the printed pattern.

All defined camera positions will be displayed as thumbnails on the *TouchScreen* monitor allowing easy recall, change of sequence, modification of individual parameters or erase. That's the easiest and fastest way of operation!



MORE CAMERAS, MORE MONITORS – MORE POTENTIAL

An even faster inspection of the printed material can be achieved by connecting additional cameras and monitors. Furthermore, this option allows one of the cameras to be placed at a fixed position or critical print area.

Image Pick-up

As an option, 2 cameras can be connected.

Surfaces

Additional special strobes can be integrated for inspection of

- _Front to backside print (with translucent materials)
- _Varnish and cold seal coatings
- _Fluorescent printed material
- _Holograms

A manual or motor driven translucent light can be supplied for special applications.

Image Reproduction

The image reproduction can take place on as many monitors as required. Both online printed patterns can simultaneously be displayed in 2-camera operation mode (Split Screen) or in the Picture in Picture mode while the window size as well as the window position can be freely selected.

Multi Design Repeat

For packaging and label printers, the multi design repeat is a very useful function. The system determines the co-ordinates of the single impressions and steps through them sequentially so that each impression is inspected individually. This function can be installed in two different ways – with or without a sensor for the automatic web edge recognition.

Colour Comparison

The integration of a colour comparison function is the first step to integrated colour measurement. Any deviation recognized by the system leads to an optical and acoustic alarm.



OPTIONS

2nd Camera

JoyStick

TouchFrame

Special Illumination Units for

_Front to backside print

_Varnish and cold seal coatings

_Fluorescent printed material

_Holograms

Flash Presetting

Transluminent Light

_manual driven

_motor driven

Additional Monitors, Flat Screens

Image Reproduction

_Each camera image on own monitor

_Picture in Picture

Multi Design Repeat

_With sensor for automatic web edge recognition

_Without sensor (manual input of the web width)

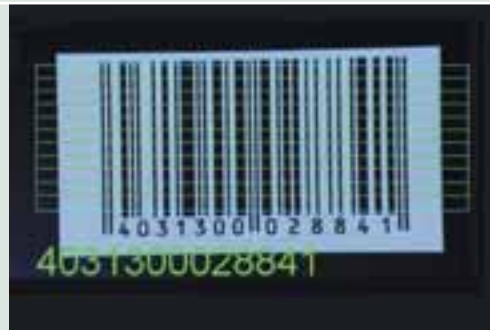
Colour Comparison

Memory Extension for Master Images

TTB module



QUALITY OF BARCODES



Barcode Module

The continuity of the print quality of barcodes gets more and more important due to the extended use of scanner tunnels. Any deviation can lead to scanning problems thus causing extensive complaints.

The use of the barcode module ensures a high measure of quality for packaging and label printing. Any barcode common in the market can be verified.

The module requires one of the cameras of the web video_3000 system. The image reproduction takes place in full-screen mode.

DETECTION OF PRINT FAULTS

Automatic defect detection is a welcome benefit to every printing company to reduce waste.

Inspection Module

Our print inspection module compares the current image with a reference image. Using many high-speed integrated circuits the picture comparison takes place in the shortest possible time. The reaction time of the system is much shorter than human perception.



Following print faults could be displayed:

- _Register errors
- _Doctor streaks
- _Printing defects
- _Splashes
- _Hickies
- _Hazing

While the machine operator reacts and removes the source of error the print fault will be stored in the print protocol.

TOP TO BOTTOM WEB INSPECTION WITH NON-TRANSLUCENT MATERIALS



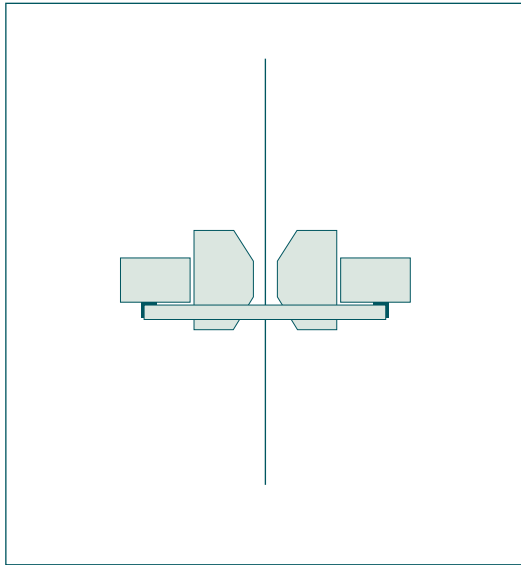
The inspection of top to bottom register with non-translucent materials at a running web seemed to be an unsolvable problem for a long time – until we solved it.

Top to Bottom Register

Images from both sides of the running web are captured simultaneously by two cameras precisely mounted face to face. An electronic superimposing of these images allows an exact

register display on the monitor. Even the smallest register deviations can be monitored leading to shorter make-ready times, less waste, improved print quality and improved production control.

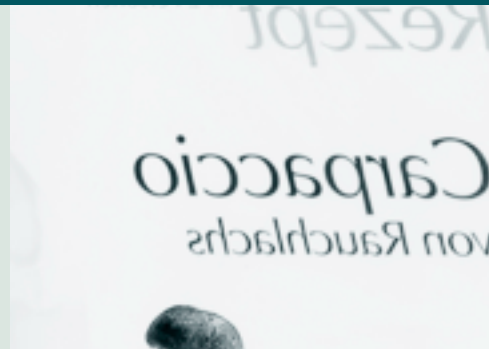


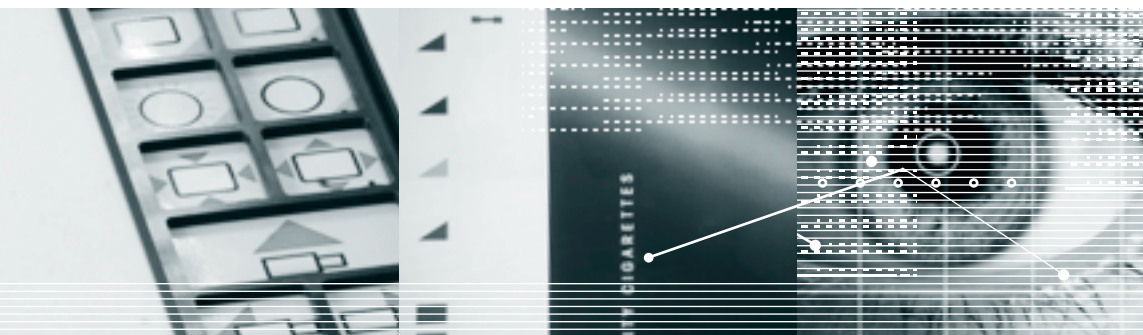


The TTB (Top to Bottom) module consists of two black and white cameras mounted face to face on two high-precision traverse bars with an accuracy of 1/100 mm. The cameras can be moved parallel to the web either manually or motor driven.

The TTB module can be used with any printing material, especially non-translucent material. The images from both sides of the web are captured simultaneously. They are superimposed electronically and displayed on the monitor either in full screen mode or in picture in picture mode. Additional special strobes can be integrated for detection of cold seal coatings, varnish and fluorescent colours. The system is designed for web speeds up to 1,000 m/min.

The TTB module may also be used with former **eltromat** web inspection systems as a retrofit. Furthermore, the Top to Bottom Web Inspection System can be supplied as stand alone system as well.





We provide world-wide service.

eltromat GmbH
Herforder Straße 249–251
33818 Leopoldshöhe
Germany

T +49 52 08 987-0
F +49 52 08 987-649
info@eltromat.de
www.eltromat.de

eltromat polygraph GmbH
Baumeisterallee 25
04442 Zwenkau
Germany

T +49 34 20 35 85-0
F +49 34 20 35 85-27

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