Maximum register precision.
First-class quality.
BST ELTROMAT REGISTER CONTROL: EFFECTIVE INCREASE IN QUALITY.

In the printing industry, competition is tough and the requirements are rising constantly. Precise checking of the print is the prerequisite for excellent printed products – and for satisfied customers.

Precision based on experience
As a leading manufacturer of quality assurance systems for the web-processing industry, BST eltromat has performed more than 200,000 installations in more than 100 countries all over the world.

The economical solution for exact register settings
AR 4400 enables precise register adjustment with many machine types, such as offset, hybrid, and label printing machines. The precision solution features compact design, intuitive touchscreen operation and low installation efforts.

The AR 4400 allows precise adjustment of color and front-to-back registers as well as reliable control of additional printing units (e.g. flexo printing units) or tool stations (e.g. rotary die-cutters).

The open system architecture of the AR 4400 allows an easy and flexible machine integration and makes the system perfectly suited for retrofit projects.

AR 4400: Your benefits
- fast setup for printing
- simple operation
- maximum quality
- increased productivity
- minimized paper waste
- higher customer satisfaction
- reduced costs

Contact us: We give you competent advice beginning at the concept phase and the project phase.
The system properties of the AR 4400 have been perfectly adapted to printing applications with the highest requirements for quality.

Simple operation
- intuitive use and clear display for easy, fast and comfortable register control via TFT touchscreen
- individually adaptable user interface and visualization of the resulting machine layout
- live-color image of the registration mark field for easy assessment of quality and the position of the registration marks
- graphical representation of register deviations for each individual measuring point
- easy selection and simultaneous adjustment of register groups or all registers
- fine adjustment of registers convenient by using arrow buttons or entering numeric values

Powerful technology for first-class quality
- AR 4400 camera unit is a combined measurement and analyzing module with a compact design
- RGB color camera and intelligent image processing algorithms for secure and fast register mark detection even with rough material structures or poor contrast
- Dual-Xenon flash for optimal lighting even with critical substrates and reflecting materials
- synchronized shutter for absolute insensitivity to extraneous light
- large camera field of view for reliable detection of registration mark field, even with dynamic web stretching processes

Options
- adjustable back strobe for safe registration mark detection of low contrast inks on transparent substrates or for front-to-back register control
- control module for detection and analysis of semi-rotative processes
- sensor traverse for comfortable, lateral positioning of the camera unit
- operator desk in a width of 800 mm
AT A GLANCE:
THE AR 4400 REGISTER CONTROL SYSTEM.

Clever planning
- one measuring head model for all register control points (web–web and web–cylinder); one mark field for control of color, front-to-back and cut-off register
- proven BST eltromat register micro-marks with diameters of only 0.5 mm–2 mm; flexible arrangement of mark field in web running or lateral direction; different mark field configurations for optimal adjustment to the particular environment
- no additional marks for control of tool stations and additional printing units
- front-to-back register control by web–cylinder measuring method, independent of the material (transparent/opaque); optional web–web measuring process in combination with back strobe
- web–web measuring method for additional printing units such as flexo printing units; web–cylinder measuring method for transparent varnish and tools
- up to 12 colors controllable by only one camera unit

- up to 10 camera units for max. 24 control stations for precise register control at complex printing machines with a lot of color units and tools
- intelligent camera unit integrates major system components and usually renders an additional panel unnecessary
- open system architecture for flexible machine integration

SYSTEM OVERVIEW

Example of a machine configuration for two-sided printing, an additional flexo unit and a cutting tool, all register controlled by the AR 4400.
EXTREMELY VERSATILE
FOR RELIABLE REGISTER CONTROL.

Technical data

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of control stations:</td>
<td>up to 24</td>
</tr>
<tr>
<td>Number of camera units:</td>
<td>up to 10</td>
</tr>
<tr>
<td>Camera type:</td>
<td>RGB digital camera</td>
</tr>
<tr>
<td>Camera resolution:</td>
<td>1024 x 768 pixels</td>
</tr>
<tr>
<td>Illumination:</td>
<td>integrated Dual-Xenon flash</td>
</tr>
<tr>
<td>Field of view:</td>
<td>50 mm x 37.5 mm</td>
</tr>
<tr>
<td>Micro-mark diameter:</td>
<td>0.5 mm to 2.0 mm</td>
</tr>
<tr>
<td>Number of marks per mark field:</td>
<td>max. 12</td>
</tr>
<tr>
<td>Measuring accuracy of color register (web–web):</td>
<td>0.01 mm</td>
</tr>
<tr>
<td>Measuring accuracy of cut-off register mark (web–cylinder):</td>
<td>up to 0.05 mm</td>
</tr>
<tr>
<td>Capture range of color register (web–web):</td>
<td>up to +/- 8 mm</td>
</tr>
<tr>
<td>Capture range of cut-off register mark (web–cylinder):</td>
<td>360°</td>
</tr>
<tr>
<td>Web speed:</td>
<td>max. 1000 m/min</td>
</tr>
<tr>
<td>Suitable materials:</td>
<td>paper, cardboard, film (transparent/opaque)</td>
</tr>
<tr>
<td>Interfaces:</td>
<td>CANopen, Ethernet, digital I/O (PWM), further ones upon request</td>
</tr>
<tr>
<td>Display/operation:</td>
<td>full HD touchscreen monitor</td>
</tr>
<tr>
<td>Service (remote access):</td>
<td>via the Internet by default</td>
</tr>
<tr>
<td>Protection class of camera unit:</td>
<td>IP 54</td>
</tr>
<tr>
<td>Supply:</td>
<td>100 V–240 V, 50/60 Hz</td>
</tr>
<tr>
<td>Ambient temperature:</td>
<td>min. 5°C, max. 40°C (monitor: see separate technical details)</td>
</tr>
</tbody>
</table>

Mark field variants

Example for mark fields for four to twelve print units (dimensions in mm, not true to scale)
R = reference mark

Further special mark fields are available on our web page.
INTELLIGENT SERVICE
THAT MOVES YOU FORWARD.

No matter where in the world you use our technologies, we support you reliably with our comprehensive BST eltromat service.

Our specialists are located all over the world and can be on site quickly in case of emergencies. You can access an extensive global production, sales, and service network – for first-class performance at any location.

For your benefit, we always adapt our systems exactly to the requirements of your production. Combine solutions from our various product areas:

- Web guiding
- 100% inspection
- Register control
- Web monitoring
- Color measurement
- Surface inspection
- Color management
- Workflow
- Automation
- Measurement of thickness and basis weight

Further information and current news are available at www.bst.group