

Highest Register Precision  
for First Class Print Quality



**AR 4000**

The logo for MBST International, featuring a stylized 'M' and 'B' in a square frame with two red dots, followed by the text 'BST International'.

# Efficient Register Control

## **Save time and money, increase your print quality**

**AR 4000** is the development for the precise adjusting of the register on many machine types like offset, hybrid and label printing presses. The system stands out due to his compact style, an intuitive touch screen operation and the low installation effort.

With **AR 4000** the adjustment of Color and Front to Back register is just as reliable as the adjustment of additional printing units (e.g. flexo printing units) or tooling stations.

Profit in multiple ways by using the **AR 4000** system:

- Save time and money due to quick system setup.
- Reduce material consumption by reduction of waste both during the setup and after machine stops or roll changes.
- Produce high quality by a constant register during the complete print job.
- Increase the customer satisfaction by compliance with the demanded register tolerances for high-quality printed products.



Compact sensing head

## **Superior technology**

**AR 4000** stands out due its technical features that allow you to produce highest quality for your customers:

- The 1-Chip CCD color camera and the intelligent image processing algorithm assure safe and fast identification of register marks also at difficult conditions like rough-textured structures or low-contrast colors.
- The dual xenon light source delivers best illumination for standard material as well as for critical substrates like film and reflecting material.
- By use of a synchronized shutter, the camera is unaffected by ambient light.
- The large field of view ensures the stable capture of the mark field also during dynamic web stretching sequences.

## **Ease of operation and register monitoring at a glance**

- The single-monitor solution of **AR 4000** combines the elements of graphic image display and simple operation on one touch screen.
- The user interface is adapted individually for every machine type. So you work with exactly matched views. Together with the multilingual user interface and the clearly laid out menus, this provides you with an intuitive operated tool for easy and fast register monitoring.

- The image of the selected camera sensing head is shown online on the operating screen. This assures the simple evaluation of the quality or position of the register marks.
- The register deviation of every single measuring point is shown as a clearly laid out graphic on the monitor.
- Groups of registers or all registers combined can be selected and altered simultaneously with just one touch of a button.
- The register fine adjustment can be done both with arrow keys and by the direct input of the numerical value of the register adjustment.

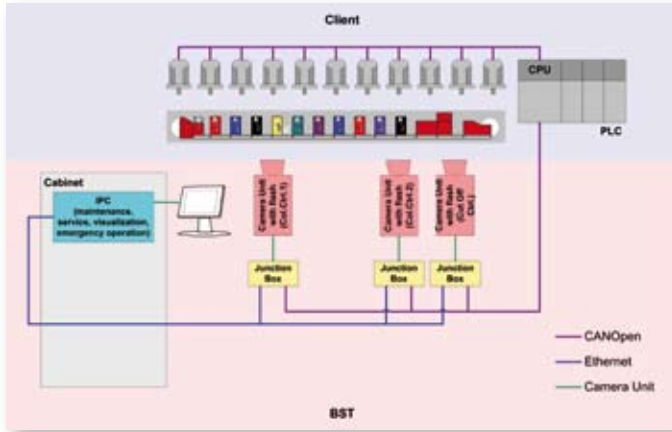


Combined touch screen both for system operation and register display. The individually adapted operator interface provides you with an intuitive operated tool for easy and fast register monitoring.

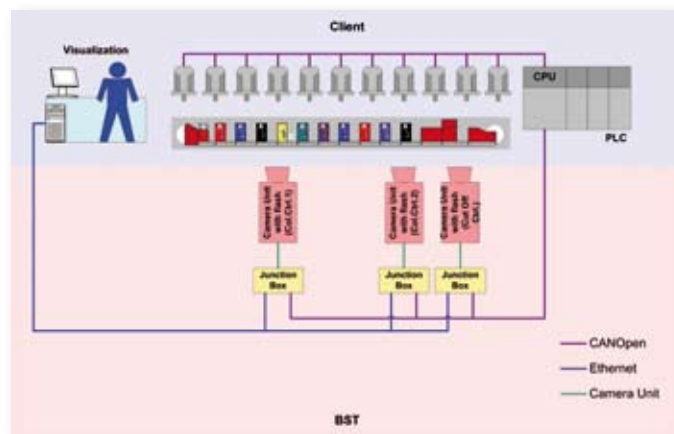
# Flexible Use

## Flexible solution

AR 4000 is available as **stand-alone** solution and a **machine integrated** version



The stand-alone version contains the required number of cameras, the junction box affiliated to every camera, a switch for data coordination, a mainframe and the combined operating and monitoring touch screen. With integrated interfaces the register adjusting commands are submitted to the machine and status information are exchanged.

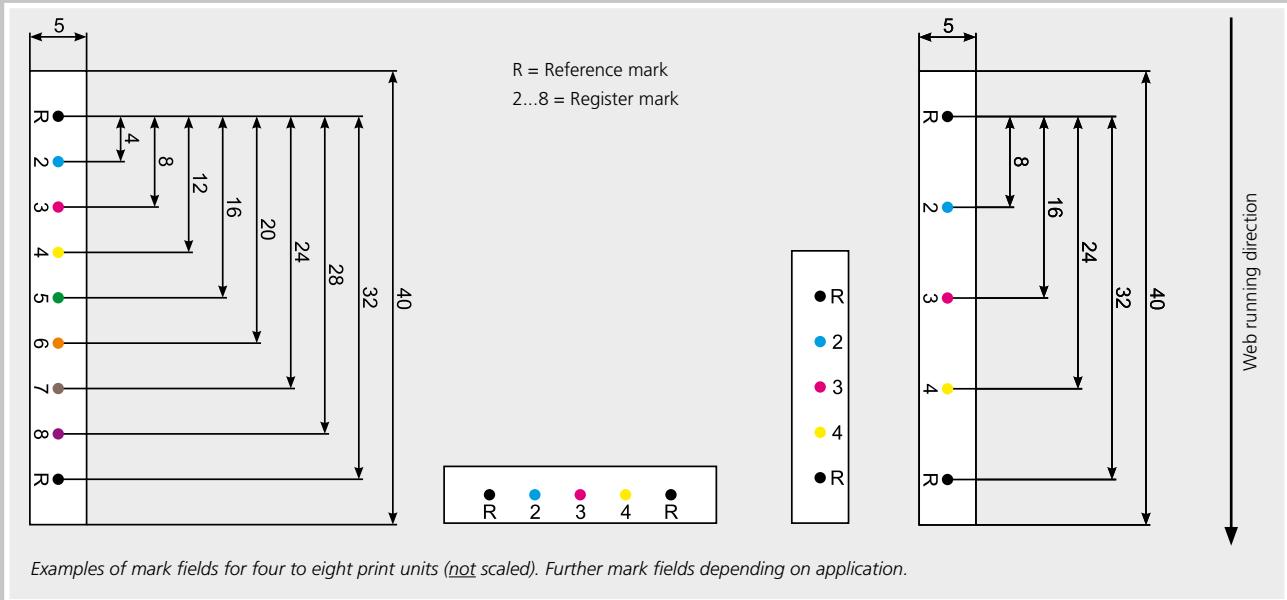


If AR 4000 is integrated into the machine, it is operated by the printing press control. Via defined interfaces, the system communicates with the machine.

## Intelligent system concept

- With AR 4000 you get a sensing head for all register control applications (mark-mark and mark-cylinder). Due to this innovative architecture the system only needs one compact mark field for the control of the Color, Front-to-Back and Cut Off register.
- The system uses the approved BST-Auto register micro dots with a diameter of only 0.5 mm (0.0019"). The mark field can be placed along or across the web running direction.
- The use of up to 12 cameras allows the precise register control also on complex printing presses with many colour units or tooling stations.
- All basic system components are integrated in the compact sensing head, so that usually no additional control desk is needed for integration in your machine.
- The open system architecture allows a flexible machine integration. The depth of integration ranges from simple pulse control (PWM) to the direct drive of the register motor up to the complete integration into the control center, incl. job administration and system operation done by the machine.
- At standard offset printing applications AR 4000 only needs one sensing head per web side, because each of the sensing heads monitors up to eight printing units.
- No additional register marks are necessary both for the control of tooling stations and of additional printing units.
- The mark-cylinder method is used with Front-to-Back register control. This method is independent of the material (transparent/opaque). Optionally the mark-mark method in combination with a back strobe is also available.
- For additional printing units (e.g. flexo printing units), the measurement method "mark-mark" and for transparent varnishes the method "mark-cylinder" can be chosen.

# Technical Overview



## Technical data

Camera:  
1-Chip RGB digital camera

Camera resolution:  
1024 x 768 px

Light source:  
Xenon light source

Size of mark field (incl. specified white space):  
variable,  
min. 24mm x 5mm (0.94" x 0.2"),  
max. 40mm x 6mm (1.57" x 0.24")

Field of view compact sensing head:  
50mm x 37.5mm (1.97" x 1.48")

Mark diameter:  
0.3mm up to 1.0mm  
(0.01" up to 0.04")

Measuring accuracy Color register (mark-mark):  
0.01mm (0.00039")

Measuring accuracy Cut Off register (mark-cylinder):  
0.05mm (0.0019")

Capture range Color register (mark-mark):  
variable, up to +/- 3.75mm (0.15")

Capture range Cut Off register (mark-cylinder):  
360°

Max. number of marks per mark field:  
8

Max. number of sensing heads per system:  
12

Max. web speed:  
1200m/min (3937ft/min)  
(depending on system)

Substrates:  
Paper, cardboard, film  
(transparent/opaque)

Communications:  
CANopen, Ethernet, service modem  
(more on request)

Data management:  
XML data base

Display/operation:  
Touch screen monitor

Options:  
Back strobe for stable register mark identification on transparent films/foils, motorized sensing head traverses for lateral mark searching and mark tracking

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