KOENIG & BAUER

# Optimum print quality made by Koenig & Bauer

we’re on it.

# Measuring systems for the most diverse requirements

If you hope to respond successfully to the market demands for ever higher print quality despite faster turnarounds, it is imperative to reduce the time spent on makeready and to safeguard the constant high quality of the printed sheets before they are passed on to a downstream finishing stage.

This process is accompanied by a marked reduction in waste, which not only benefits the environment through the more efficient use of paper, inks and energy, but also helps to maximise the profitability of your print activities.

Koenig & Bauer offers a broad spectrum of solutions geared to realising precisely these process improvements.

### Online control

The measuring systems with online control form the “ErgoTronic” family. The systems perform their measurements outside the press and then propose corresponding setting corrections. The operator can accept these proposals with the press of a button and the relevant parameter adjustments are realised via an online link to the console.

### Inline control

The measuring systems with inline control form the “QualiTronic” family. The systems perform their measurements directly on the press and use specified references to correct the relevant parameters fully automatically during on-going production. Manual intervention is possible, but not necessary.

# Measuring systems at a glance

| | Online – ErgoTronic | Inline – QualiTronic |
|---|---|---|
| **Register measurement and control** | ErgoTronic ACR<br>ErgoTronic ICR | QualiTronic ICR |
| **Colour measurement and control** | ErgoTronic ColorDrive<br>ErgoTronic ColorControl | QualiTronic ColorControl |
| **Quality measurement** | | QualiTronic PrintCheck<br>QualiTronic PDFCheck<br>QualiTronic PDF HighRes |


ErgoTronic ColorDrive is installed on the console inspection desk. Colour measurements and visual assessment of the sheet can thus be performed simultaneously.

# ErgoTronic ColorDrive – Compact colour measurement

ErgoTronic ColorDrive is an automatic colour measuring system. The motorised measuring head is able to scan colour bars at any position on the printed sheet. The position of the colour bars can be adjusted manually in the direction of print.

### Technical data

| | |
|---|---|
| **Density** | 0...2.5 |
| **Optimum colour bar height**[1] | |
| Half format, min. height | 5 mm |
| Medium format, min. height | 5 mm |
| **Measurement cycle/makeready**[2] | 120 sheets |
| **Measuring time** | 10 s/m |

[1] Process prerequisites
[2] Reference job "KBA_Ger_Color"

### Function

After scanning of the colour bar, the measured solid densities are presented on the screen in a graphic display. These measurements can then be taken as a basis for single or dynamic corrections of the ink key settings.

### Option

ErgoTronic Lab (spectral measurement and control based on Lab values)

### Use

After setting up the measuring system, including calibration for the substrate white, the printer takes a sheet from the press delivery and places it on the console inspection desk for measurement. Subsequently, the proposed corrections can be accepted and transmitted to the press for automatic modification of the ink profile.

### Availability

RA 75 PRO, RA 76, RA 105, RA 105 PRO, RA 106

**ErgoTronic ColorControl is integrated into the console inspection desk. Colour measurements and visual assessment of the sheet can thus be performed simultaneously. The sheet is fixed on the desk by way of a vacuum.**

# ErgoTronic ColorControl – Colour measurements in all dimensions

ErgoTronic ColorControl is an automatic colour measuring system. The motorised measuring head is able to scan colour bars at any position on the printed sheet. The position of the colour bars is set by motorised adjustment in the direction of print.

### Technical data

| | |
|---|---|
| **Density** | 0...2.5 |
| **Optimum colour bar height** | |
| Half format, height | 5 mm |
| Medium format, height | 5 mm |
| Large format, height | 6 mm |
| **Measurement cycle/makeready**[1] | 120 sheets |
| **Measuring time** | 10 s/m |

[1] Reference job "KBA_Ger_Color"

### Function

After scanning of the colour bar, the measured solid densities are presented on the screen in a graphic display. These measurements can then be taken as a basis for single or dynamic corrections of the ink key settings.

### Use

After setting up the measuring system, including calibration for the substrate white, the printer takes a sheet from the press delivery and places it on the console inspection desk for measurement. Subsequently, the proposed corrections can be accepted and transmitted to the press for automatic modification of the ink profile.

### Availability

RA 75 PRO, RA 76, RA 105, RA 105 PRO, RA 106, RA 145, RA 164


QualiTronic ColorControl is installed after the last printing unit. On perfector presses, a second system is installed after the last printing unit before the perfecting unit. Operation and measurement display are integrated into the press console.

# QualiTronic ColorControl: Convenient inline colour control

QualiTronic ColorControl is an inline colour measuring system. A camera system with LED illumination is integrated directly into the press and permits fully automatic ink density measurements in colour bars. The colour bars can be positioned either at the front or in the centre of the sheet. With certain substrates, positioning towards the rear edge may also be possible.

### Function

As soon as printing starts, the colour bars are scanned directly in the press and the measured solid densities are presented on the screen in a live graphic display. The measurements are used as a basis for fast, dynamic inline colour control.

### Use

Once the measuring system is set up, all measuring patches are scanned on every printed sheet – right up to maximum production speed. The first setting corrections are realised immediately after the job start; once in production, a control cycle of 10 sheets is effective.

### Availability

RA 75 PRO, RA 76, RA 105, RA 105 PRO, RA 106, RA 145, RA 164

### Technical data

| | |
|---|---|
| **Density** | 0...2.5 |
| **Optimum colour bar height** | |
| Half format, height | 5 mm |
| Medium format, height | 5 mm |
| Large format, height | 6 mm |
| **Measurement cycle/makeready**[1] | 10/150 sheets |
| **Measuring time** | 0.2 s |

[1] Reference job "KBA_Ger_Color"

ErgoTronic ACR is integrated into the press console. The measurements are performed on the sheet inspection desk of the console.

# ErgoTronic ACR: Compact register measurement

ErgoTronic ACR is a register measuring system. The hand-held measuring head is used to evaluate register marks on the printed sheets. The control function then calculates the necessary corrections for lateral, circumferential and diagonal register.

### Technical data

| | |
|---|---|
| **Register marks for up to 10 printing units** | |
| **Mark size** | 3 x 7 mm² |
| **Measurement cycle/makeready**[1] | 50/100 sheets |
| **Measuring time (2 marks)** | 60 s |

[1] Reference job "KBA_Ger_Color"

### Function

ErgoTronic ACR permits exceedingly precise determination of the relative position deviations between colour separations by way of special register marks. The measurements can be used directly for register setting on the press.

### Use

The printer takes a sheet from the press delivery and places it on the console inspection desk for manual evaluation of the register marks. Subsequently, the proposed corrections can be accepted and transmitted to the press for automatic modification of the register settings.

### Availability

RA 75 PRO, RA 76, RA 105, RA 105 PRO, RA 106, RA 145, RA 164

ErgoTronic ICR is integrated into ErgoTronic ColorControl. The measurements are performed on the sheet inspection desk of the console.

# ErgoTronic ICR: Convenient register control

ErgoTronic ICR is an automatic register measuring system. Its motorised measuring head evaluates register marks on the printed sheets. The control function then calculates the necessary corrections for lateral, circumferential and diagonal register.

## Function

ErgoTronic ICR permits exceedingly precise determination of the relative position deviations between colour separations by way of special register marks. The measurements can be used directly for register setting on the press.

## Use

After setting up the measuring system, the printer takes a sheet from the press delivery and places it on the console inspection desk for automatic evaluation of the register marks. Subsequently, the proposed corrections can be accepted and transmitted to the press for automatic modification of the register settings. Register measurement can be combined with colour measurement in a single scanning pass over the same sheet.

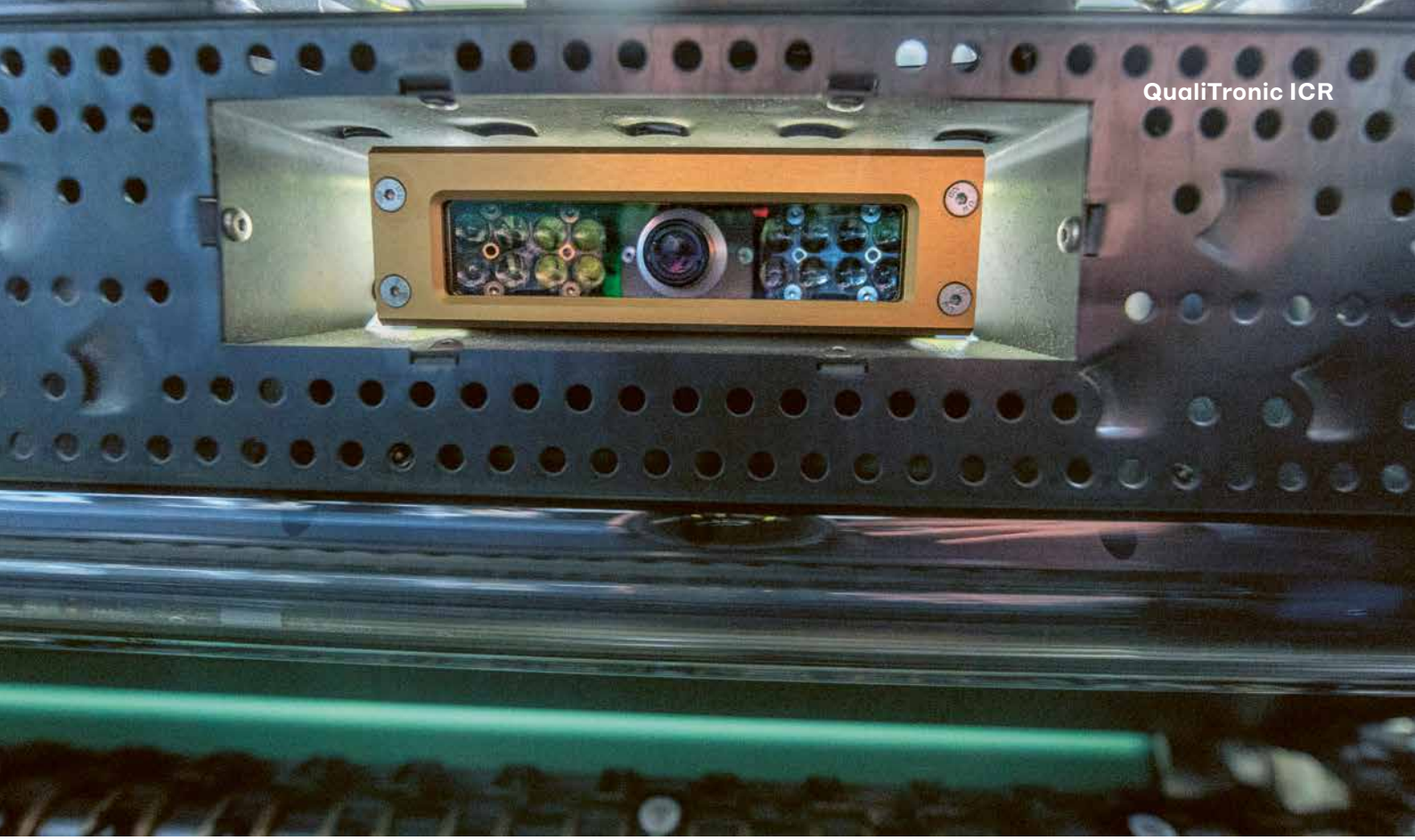
## Availability

RA 75 PRO, RA 76, RA 105, RA 105 PRO, RA 106, RA 145, RA 164

## Technical data

| | |
|---|---|
| **Register marks for up to 10 printing units** | |
| **Mark size** | 3 x 7 mm² |
| **Measurement cycle/makeready**[1] | 50/100 sheets |
| **Measuring time (2 marks)** | 30 s |

[1] Reference job "KBA_Ger_Color"



# QualiTronic ICR: Effortless inline register control

QualiTronic ICR is an automatic inline register measuring and control system. A sensor system is integrated directly into the press and permits fully automatic evaluation of the register marks in colour bars. The colour bars can be positioned either at the front or in the centre of the sheet. The control function then calculates the necessary corrections for lateral, circumferential and diagonal register.

## Technical data

| | |
|---|---|
| **Register marks for up to 10 printing units** | |
| **Mark size** | 3 x 7 mm² |
| **Measurement cycle/makeready**[1] | 50/100 sheets |
| **Measuring time (2 marks)** | 0.2 s |

[1] Reference job "KBA_Ger_Color"

### Function

The measuring system permits exceedingly precise determination of the relative deviations between colour separations by way of special register marks at a known position on the sheet. The measurements can be used directly for register setting on the press.

### Use

QualiTronic ICR measures the printed sheets directly on the press. After automatic evaluation of the register marks, the proposed corrections can be accepted by the operator and transmitted to the press for automatic modification of the register settings.

**Availability:** RA 106, RA 145, RA 164

QualiTronic PrintCheck expands QualiTronic ColorControl with sheet inspection functionality. The camera system is installed after the last printing unit. On perfector presses, a second camera is integrated at the perfecting unit.


# QualiTronic PrintCheck: Colour measurement and sheet inspection in one system

QualiTronic PrintCheck expands the QualiTronic ColorControl system by adding sheet inspection functionality. This unique system then enables colour measurement to be combined with production quality monitoring. A colour measuring camera with LED illumination is integrated directly into the press and permits fully automatic comparison of the printed sheets with a previously defined reference.

### Technical data

| **Geometric resolution** | |
|---|---|
| Half format | 135 dpi |
| Medium format | 100 dpi |
| Large format | 70 dpi |
| **Inspection cycle/makeready**[1] | 1/10 sheets |

[1] Reference job "KBA_Ger_Color"

### Function

When printing starts, the system evaluates a number of good sheets and automatically generates a production reference. The inspection parameters are similarly determined by the system itself. Subsequently, all further printed sheets are automatically compared with the reference. Any deviations or errors which are detected in the image are visualised on the monitor and marked in the pile by way of a tag inserter (option). At the end of the job, a simple job report is saved automatically as a PDF file, again without further inputs on the part of the operator. The makeready time for this system is thus effectively zero.

### Use

From start to finish of a print job, the system functions completely autonomously. Job data are imported in the background, and the inspection parameters are also determined automatically. Automatic sheet inspection commences as soon as production monitoring is activated.

### Availability

RA 75 PRO, RA 76, RA 105 PRO, RA 106, RA 145, RA 164

# QualiTronic PDFCheck: Three functions in one system

QualiTronic PDFCheck incorporates two additional functions into the QualiTronic ColorControl system – sheet inspection and comparison of the printed sheet with a pre-press PDF. This function is especially interesting for Internet printers with their frequent job changes, as well as for packaging printers.

**Technical data**

| **Geometric resolution** | |
|---|---|
| Half format | 135 dpi |
| Medium format | 100 dpi |
| Large format | 70 dpi |
| **Inspection cycle** | 1 |

**Function**

Timely comparisons enable errors on the sheet to be detected before actual production commences. In the past, separate systems offering such functions were generally aimed at users working in security printing or for the pharmaceuticals branch. QualiTronic PDFCheck, on the other hand, is intended to support also commercial and packaging printers.

**Use**

PDF comparison starts automatically, and it is only when QualiTronic PDFCheck detects any deviations that the operator is called upon to react.

**Availability**

RA 106, RA 145, RA 164

# QualiTronic PDF HighRes: Inline inspection for content monitoring

QualiTronic PDF HighRes is an on-press inspection system which compares each printed sheet with a predefined reference in an inline process. Two high-resolution cameras are installed after either the last printing unit (separately for both sides of the sheet on perfector presses) or the coater.

Comparisons can be performed both for the sheet as a whole and for individual blanks. Any errors detected can be visualised and documented.

**Function**

QualiTronic PDF HighRes enhances production reliability significantly. If errors occur, the printer is able to react immediately to reduce production waste. This also guarantees the consistent high quality of print products within a given pile. Certificates and reports can be supplied to the final customer as proof of this quality.

**Use**

The system handles two tasks. First, the PDF data from pre-press are used to define a reference sheet. Subsequent production is then monitored at the same resolution as this reference sheet – right up to full production speed. A tag inserter can be used to mark faulty sheets in the delivery pile. At the same time, detected errors are visualised on the wallscreen. Error reports furnish proof of the quality attained.

**Availability:** RA 106, RA 145

**Technical data**

| | |
|---|---|
| **Geometric resolution** | |
| Medium format | 290 dpi (RA 106) |
| **Measurement cycle** | Every sheet |
| **Error size** | approx. 90 µm |
| **Measuring time** | 0.2 s |


Inline - QualiTronic
3 – QualiTronic ICR
5 – QualiTronic ColorControl
6 – QualiTronic PrintCheck
7 – QualiTronic PDFCheck
8 – QualiTronic PDF HighRes


Online – ErgoTronic
1 – ErgoTronic ACR
2 – ErgoTronic ICR
4 – ErgoTronic ColorControl

# Functionality of system options

**ErgoTronic Lab**
Measurement and control by way of Lab values

**ErgoTronic PSO-Match**
Colour control according to the Process Standard Offset (PSO)

**ErgoTronic Instrument Flight**
Colour control (grey balance) according to System Brunner

**ErgoTronic ImageZoom**
Video magnifier for image inspection

**QualiTronic & ErgoTronic QualityPass**
Measurement reports for quality assurance

**Koenig & Bauer colour bars**
Prerequisite for reduced colour bar height, colour measurement, register measurement, PSO, Instrument Flight, up to 7 colours

**QualiTronic ColorControl PSO-Match**
Colour control according to the Process Standard Offset (PSO)

**QualiTronic ColorControl Instrument Flight**
Colour control (grey balance) according to System Brunner

**QualiTronic ColorControl ColorView**
Control reports to document average ink density values for each printing unit over the whole course of a job

**QualiTronic ColorControl DotView**
Evaluation of colour bars with regard to dot gain

**QualiTronic PDF PileView**
Software for visual assessment and documentation of an inspected pile

# Available options

| Option for measuring system | RA 75 PRO<br>RA 76 | RA 105 | RA 105 PRO<br>RA 106 | RA 145<br>RA 164 |
|---|---|---|---|---|
| **ErgoTronic Lab**<br>ErgoTronic ColorDrive<br>ErgoTronic ColorControl | ■ | ■ | ■ | ■ |
| **ErgoTronic PSO-Match**<br>ErgoTronic ColorDrive<br>ErgoTronic ColorControl | ■ | ■ | ■ | ■ |
| **ErgoTronic Instrument Flight**<br>ErgoTronic ColorDrive<br>ErgoTronic ColorControl | ■ | ■ | ■ | ■ |
| **ErgoTronic ImageZoom**<br>ErgoTronic ICR<br>ErgoTronic ACR | ■ | ■ | ■ | ■ |
| **QualityPass**<br>ErgoTronic ColorDrive<br>ErgoTronic ColorControl<br>QualiTronic ColorControl | ■ | ■ | ■ | ■ |
| **Koenig & Bauer colour bars**<br>ErgoTronic ColorDrive<br>ErgoTronic ColorControl<br>QualiTronic ColorControl | ■ | ◪ | ■ | ■ |
| **QualiTronic PSO-Match**<br>QualiTronic ColorControl | ■ | ■ | ■ | ■ |
| **QualiTronic Instrument Flight**<br>QualiTronic ColorControl | ■ | ■ | ■ | ■ |
| **QualiTronic ColorView**<br>QualiTronic ColorControl | ■ | ■ | ■ | ■ |
| **QualiTronic DotView**<br>QualiTronic ColorControl | ■ | ■ | ■ | ■ |
| **QualiTronic PrintCheck**<br>QualiTronic ColorControl | ■ | ■ | ■ | ■ |
| **QualiTronic PDFCheck**<br>QualiTronic ColorControl | ■ | ■ | ■ | ■ |
| **QualiTronic PDF-PileView**<br>QualiTronic PDFCheck<br>QualiTronic PDF HighRes | ◪<br>◪ | ◪<br>◪ | ■<br>◪ | ■<br>■ |

◪ Option not applicable for all measuring systems available for this press series

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