

Specifications

Mark Size

- 0.008" to 0.040" (0,2mm to 1mm)
- Auto-scaling for any mark size within range

Clear Space

- Dependent on mark size and expected registration error
- Generally 0.100" greater than mark pattern

Maximum Web Speed

- 3,600 FPM

Maximum Number of Colors

- 10

Mark Identification

- Automatic mark search at start-up requires no operator intervention

Camera Field of View

- Approximately .75" x 1"

Web Flutter

- Automatic flutter compensation

Measurement Frequency

- 15 measurements per second

Background Contrast

- Any background that is uniform and different from the marks printed is acceptable

Measurement Accuracy

- $\pm 0.0005"$ (0,01 mm)

Measurement Resolution

- 0.001" (0,02 mm)

Measurement Capability

- Color to Color
- Print to Cut
- Side-lay
- Unit to Unit
- Front to Back

System Capability

- 2 Cameras per Interface Module
- Multiple Modules per System
- All modules networked via Ethernet
- Other bus structures available by request

Operating Environment

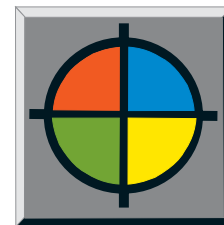
- 0° C to 40° C



HURLETRON®

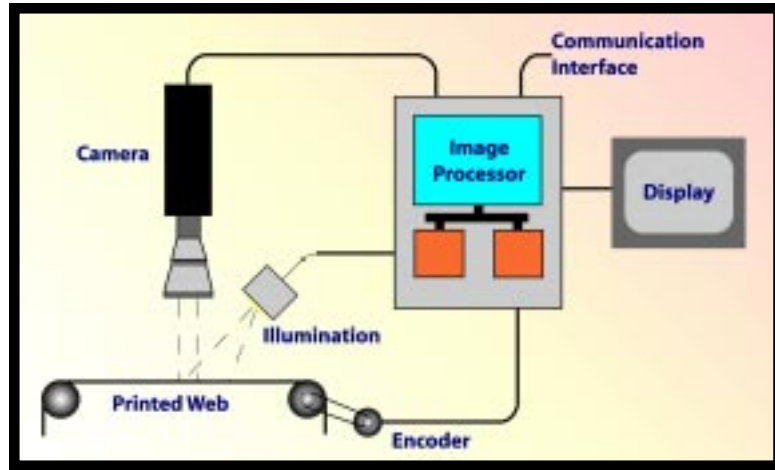


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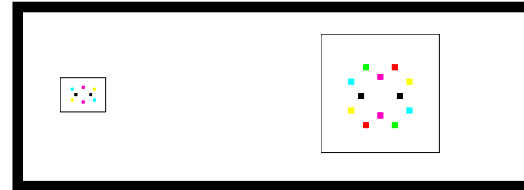


MicroDot

Automatic Registration Control



The MicroDot looks at the printed registration mark pattern which can be comprised of registration marks as small as 0.008" square. The system determines registration values from the registration mark pattern, which can be virtually invisible. The following representations show registration mark geometric patterns for four-color process printing if 0.010" square registration marks are used and six-color printing if 0.025" square marks are used.



Registration measurement on applications ranging from simple two-color printing on paper substrates to complex 10-color printing on films are routinely handled by the MicroDot.

Typical Applications

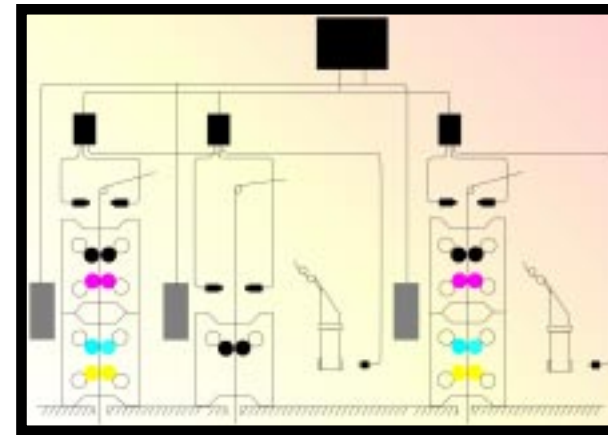
Hurletron's MicroDot is designed for printing applications that require simultaneous registration control of multiple webs or registration control of several colors.

Typical *newspaper applications* consist of front and back color to color and front to back registration, as well as control of the image relative to the cut-off for each web. Multiple webs also require unit to unit registration control to place the webs in register with each other; and where webs are slit, side-lay control or lateral positioning of the individual ribbons is often required

Color to color registration control of several printed colors is typically required with common impression flexographic printing often used in *flexible packaging applications*. These applications typically consist of color to color registration control of six to ten printed colors as well as in-line control of one or two additional print units. The MicroDot is designed to handle the registration requirements of up to 10 colors and two in-line print to cut events with a single camera.

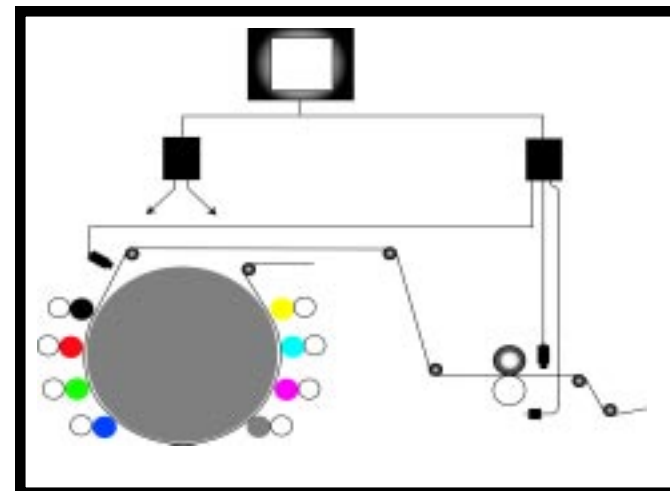
The MicroDot is the most economical solution for any printing application requiring simultaneous measurement and control of multiple printed images. It is designed to handle web speeds up to 3,600 feet per minute, registration marks as small as 0.008", and measure print registration accurately to 0.001" fifteen times each second.

Simplest Operation Possible



The system automatically scales the registration measurement without any operator intervention to allow flexibility in the registration mark size used. Any registration mark size greater than 0.008" square (0,2 mm square), given the marks are positioned to specification, is acceptable to the system.

The MicroDot automatically finds and locks on the mark pattern; and automatically adapts to differing background contrasts.



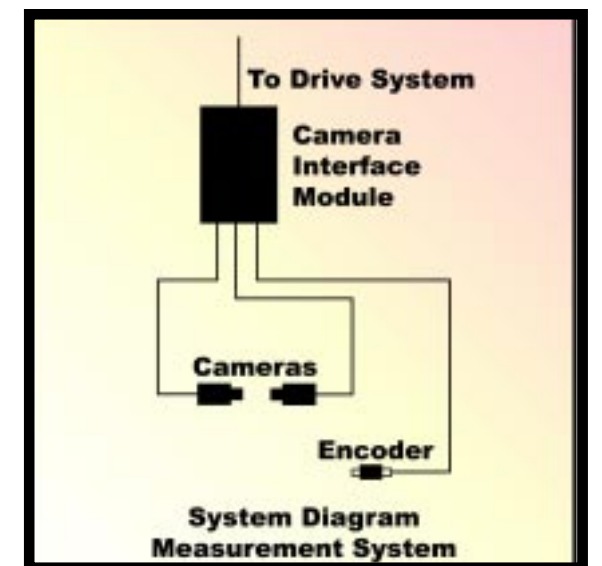
Automatic scaling of the measurement, mark tracking and background compensation require no operator intervention. Operators are free to focus on the quality of the printing process rather than the operation of the registration control system. Operation is as simple as 1 – 2 – 3 ... turn the registration control system on, start printing and adjust registration.

Unique System Features

- Fully scalable for a variety of mark sizes
- Automatic web flutter compensation
- Smallest marks available – practically invisible
- Highest web speeds available
- Automatic background compensation
- Unique mark pattern produces deterministic results
- No special lenses required
- Easy to use touchscreen interface

Measurement Only Sub-System

The emergence of shaftless presses on specific printing applications is changing the functional requirements for registration control. For users that require a registration control integrated into the machine control system, the MicroDot is available as a registration measurement-only sub-system. Registration measurement values are communicated to another control system over industry standard networks.



Hurletron® Incorporated, the first supplier of registration controls to the printing industry, has designed a new registration control system aimed at meeting the needs of printers who must use virtually invisible registration marks to meet the highest print quality standards. The new MicroDot Registration System is the most versatile and accurate registration platform commercially available to meet the productivity demands of today's printers.

Registration Measurements

The MicroDot is capable of managing the following registration applications:

Color to Color

... the circumferential and transverse color to color registration of an image on one side of a single web

Print to Cut

... the location of the image relative to a cut-off or die-cut position

Side-lay

... the lateral position of ribbons

Unit to Unit

... the circumferential position of the image on one web relative to the image on another web

Front to Back

... the circumferential and lateral registration of the front side colors to the back side colors