Hitachi's Vision System MC-20S features a versatile, easy to use and quick starting interface. The forward-looking collaboration with Hitachi Printers means that the system instantaneously checks date and serial numbers for error. As a key component to Hitachi Industrial Equipment, the MC-20S becomes an effective complement to Hitachi IJ printers. Constantly striving for user-friendly configuration and operation, it also presents a significant savings.

**Features**
- HITACHI original adjustable matching method optimally suited for ink jet printers
- Featuring a color camera for flexible print verification
- Dedicated white LED strobe lighting and controller power supply
- Optimally adjusted focus and lighting previously reliant on individual intuition
- Print interpretation (Binanization) setup is easier, by suggesting the optimal color filter values
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**Specifications**
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**Reliable Vision System**
- Reliability with years of solid performance
- Versatile functions helping achieve total marking

**Versatile**
- Versatile functions helping achieve total marking

**Simple**
- Constantly striving for user-friendly configuration and operation

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**Hitachi Vision System MC-20S**
Reduce Production waste by incorporating Hitachi’s Vision System with our legendary small character printer.

Hitachi Vision System MC-20S working with Hitachi IJ printer for total marking

**Reliable**

**Human-like assessment**

**Matching verification method**

- **Adjustable matching**
  - Hitachi’s original adjustable matching method is adopted to enable human-like assessment according to changes in the size and line thickness of dot fonts. This allows the character size and 80% which would otherwise be judged NG by general image verification, to pass the verification stage and prevents unnecessary item rejection.

**Matching principle**

- Adjustable matching is a method allowing changes in the size and line thickness which may occur in marking by ink jet printers. By combining the latest image processing technology, this method offers flexible print verification.

- **OK dictionary registration**
  - Characters which were used to be judged NG can be registered in the dictionary which offers human-like assessment.

- **NG dictionary**
  - Characters which are likely to be mistakenly judged OK can be registered as NG characters. Registering character patterns users want to reject allows more precise print verification.

- **Hallic cutout**
  - It has previously been difficult to judge the boundaries between hallic characters due to their crossover tendency. Using hallic cutout, Hitachi Vision System MC-20S has achieved this value.

**Providing flexible print verification**

- Corresponding to color camera
  - A color camera can be used to judge color differences that would not otherwise be identifiable by a monochrome camera. Software color filters eliminate the need for users to select lighting and install color filters.

- Matching verification
  - Matching verification are binarized. Images separated from original images for verification are displayed at the appropriate focal position on screen.

**Digital display of focus and diaphragm**

- Assisted focal adjustment
  - Various corrective functions are available

- **Reference position correction**
  - The print position of characters and logo marks can be set as reference values, which allow immediate catch-up for correction, even if the work position moves back and forth and around.

- **Automatic adjustment to print data changes**
  - The calendar and count function are built in for automatic catch-up with print data change such as the date of manufacture, best-before date, and serial lot number. The offset function is provided for automatic recalculations in compliance with the period (offset) setting.

- **Recommended value guide**
  - For general verification, parameters, such as "reddening normalized level" and "reddening color filter", which may have a significant impact on verification preciseness, are displayed on screen for a user-friendly configuration, which would be conventionally difficult without professional knowledge.

**Simplified adjustment guide**

- Simplified item setup by following the on-screen guidance.

- Assisted focal adjustment
  - Various corrective functions are available

- **Reference position correction**
  - The print position of characters and logo marks can be set as reference values, which allow immediate catch-up for correction, even if the work position moves back and forth and around.

**Supporting the setup process**

- **Recommended value guide**
  - For general verification, parameters, such as "reddening normalized level" and "reddening color filter", which may have a significant impact on verification preciseness, are displayed on screen for a user-friendly configuration, which would be conventionally difficult without professional knowledge.

**Utilities**

- Optimally configured focus and diaphragm, which were previously reliant on operator’s experience and intuition, are displayed as numeric readings. Various adjustments by checking the numeric data carry simple setting.

- Assisted focal adjustment
  - Various corrective functions are available

- **Reference position correction**
  - The print position of characters and logo marks can be set as reference values, which allow immediate catch-up for correction, even if the work position moves back and forth and around.

**Automatic adjustment to print data changes**

- **Calendar and count-up**
  - The calendar and count function are built in for automatic catch-up with print data change such as the date of manufacture, best-before date, and serial lot number. The offset function is provided for automatic recalculations in compliance with the period (offset) setting.

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**Supporting precise print verification**

- **Various corrective functions available**
  - Even where the moving work rotates (180°), the immediate rotation correction allows stable print verification.

- **Automatic adjustment to print data changes**
  - The calendar and count function are built in for automatic catch-up with print data change such as the date of manufacture, best-before date, and serial lot number. The offset function is provided for automatic recalculations in compliance with the period (offset) setting.

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Hitachi’s Vision System MC-20S features a versatile, easy to use and quick starting interface. The forward-looking collaboration with Hitachi Printers means that the system instantaneously checks date and serial numbers for error. The Vision System not only eliminates printing errors which visual checks may overlook, but also by adopting HITACHI’s unique adjustable method, it also prevents unnecessary product rejection resulting in a significant savings.

As a key component to Hitachi Industrial Equipment, the MC-20S becomes an effective complement to Hitachi IJ printers.

### Features

- HITACHI original adjustable matching method optimally suited for ink jet printers
- Featuring a color camera for flexible print verification
- Dedicated white LED strobe lighting and controller power supply
- Optimally adjusted focus and lighting previously reliant on individual intuition
- Print interpretation (Binarization) setup is easier, by suggesting the optimal color filter values

### Simple Versatile

- Constantly striving for user-friendly configuration and operation
- Reliable print verification with peace of mind performance

### Reliable

- Versatile functions ensuring reliable total reading
- Simple touch panel display

### Hitachi Vision System MC-20S

#### Specifications

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<tr>
<th>Item</th>
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<th>Option</th>
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<td>Camera</td>
<td>Color camera/Monochrome camera</td>
<td>Option</td>
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<tr>
<td>Lens</td>
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<td>Lens(12mm)</td>
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<td>Lens(8mm)</td>
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<td>6-M2 (Color)</td>
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<td>4-M2 Depth3</td>
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<td>Iris fixing screw</td>
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<td>Iris adjustment ring</td>
<td>Filter screw</td>
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<td>TV LENS 8mm1:1.3</td>
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<td>1, 2, 3, 4, 5, 6, 7, 8, 9</td>
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#### Option

- Touch panel display
- Dedicated white LED strobe lighting
- Counter display
- Count reset, test mode
- USB port x 2
- Specification
- 2-M2 Depth3
- CO.2 CO.5
- 30°, 60°, 120°, 180°, reference position correction,
Reduce Production waste by incorporating Hitachi’s Vision System with our legendary small character printer.

Hitachi Vision System MC-20S working with Hitachi IJ printer for total marking

**Reliable**

**Human-like assessment**

**Matching verification method**

Adjustable matching

Hitachi original adjustable matching method is adopted to enable human-like assessment according to changes in the size and line thickness of dot fonts. This allows the character size and thickness which would otherwise be judged OK by general image verification, to pass the verification stage and prevents unnecessary item rejection.

**Matching principle**

Adjustable Matching is a verification method allowing changes in the size and line thickness which may occur in marking by ink jet printers. By combining the latest image processing technology, this method offers flexible print verification.

**OK dictionary registration**

Properly spaced characters such as 0 and 9, which are often difficult to be judged OK, can be registered in the dictionary, which offers human-like assessment.

**NG dictionary**

Characters which are likely to be mistakenly read can be registered as NG characters. Registering character patterns users want to reject allows more precise print verification.

**Italic cutout**

It has previously been difficult to judge the boundaries between italic characters due to their crossover tendency. Using diagonal cutout, Hitachi Vision System MC-20S has improved this issue.

**Providing flexible print verification**

A color camera can be used to judge color differences that would not otherwise be identifiable by a monochrome camera. Software color filters eliminate the need for users to select lighting and install color filters.

By combining the latest image processing technology, this method offers flexible print verification.

**Examples of pass patterns**

Registered patterns are matched against the input patterns. They may vary according to the customer’s evaluation conditions.

**Examples of NG patterns**

With false matches, hitachi vision system MC-20S has improved this issue.

**Crossing tendency**

Boundaries between italic characters due to their crossover tendency. Using diagonal cutout, Hitachi Vision System MC-20S has improved this issue.

**Examples of evaluation results**

Evaluation results can be used to judge the input pattern against the registered patterns. They are displayed on the screen.

**Reliable**

**Recommended value guide**

For general verification, parameters such as “reading/luminance level” and “setting color filter”, which may have a significant impact on verification procedures, are displayed on screen for a user-friendly configuration, which would be conventionally difficult without professional knowledge.

**Digital display of focus and diagram**

Utilities

Optimally configured focus and diagram, which were previously reliant on operator’s experience and intuition, are displayed as numeric readings. Various adjustments by checking these numeric data carry simple setting.

**OK dictionary registration**

Automatic adjustment to print data changes

**Simplified adjustment guide**

Simplified item setup by following the on-screen guidance.

**Simplified adjustment guide**

- **Setting of lighting and adjustment of diafragram**
  - The point with the highest focal value of manual adjustment is found and displayed at the appropriate focal position on screen.

**Simplified adjustment guide**

- **Setting of lighting and adjustment of diafragram**
  - The density (lighting) of the center and four corners are displayed when capturing the white image, which allows checking for shadows and appropriate lighting.

**Simplified adjustment guide**

- **Setting of lighting and adjustment of diafragram**
  - The densities (lighting) of the center and four corners are displayed when capturing the white image, which allows checking for shadows and appropriate lighting.

**Automatic adjustment to print data changes**

**Calendar and count-up**

The calendar and count function are built-in for automatic catch-up with print data change such as the date of manufacture, best-before date, and serial lot number. The offset function is provided for automatic calculations in compliance with the period (offset) setting.

**Recommended value guide**

**Versatile**

- **Supporting precise print verification**
  - Even where the moving work rotates (180°), the immediate rotation correction allows stable print verification.

**Recommended value guide**

**Supporting the setup process**

**Simplified adjustment guide**

Simplified item setup by following the on-screen guidance.

**Simplified adjustment guide**

- **Supporting precise print verification**
  - Various corrective functions available
  - **Reference position correction**
    - The print position of characters and logo marks can be set to reference values, which allows immediate catch-up for correction, even if the work position moves back and forth and around.

**Simplified adjustment guide**

- **Supporting precise print verification**
  - **Various corrective functions available**
    - **Reference position correction**
      - The print position of characters and logo marks can be set to reference values, which allows immediate catch-up for correction, even if the work position moves back and forth and around.

**Simplified adjustment guide**

- **Supporting precise print verification**
  - **Various corrective functions available**
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Reliable

Matching verification method

- **Adjustable matching**
  - Hitachi’s original adjustable matching method is adopted to enable human-like assessment according to changes in the size and line thickness of dot fonts. This allows the character size and tilt, which would otherwise be judged NG by general image verification, to pass the verification stage and prevents unnecessary item rejection.

- **Matching principle**
  - Adjustable Matching is a verification method allowing changes in the size and line thickness which may occur in marking by ink jet printers. By combining the latest image processing technology, this method offers flexible print verification.

- **OK dictionary registration**
  - Printed characters which users wish to be judged OK can be registered in the dictionary, which offers human-like judgment.

- **NG dictionary**
  - Characters which are likely to be mistakenly read can be registered as NG characters. Registering character patterns users want to reject allows more precise print verification.

- **Italic cutout**
  - It has previously been difficult to judge the boundaries between italic characters due to their close resemblance. Using diagonal cutout, Hitachi Vision System MC-20S has resolved this issue.

- **Lighting verification**
  - To ensure consistent image capture and lighting, the densities (lighting) of the center and four corners are displayed when capturing images separated from black and white images, which allows checking for uniform and appropriate lighting.

- **Setting of lighting and adjustment of diaphragm**
  - For general verification, parameters, such as “setting binarized level” and “setting color filter”, which may have a significant impact on verification preciseness, are displayed on screen for a user-friendly configuration, which would be conventionally difficult without professional knowledge.

- **Supporting the setup process**
  - Simplified adjustment guide
    - For general verification, parameters, such as “setting binarized level” and “setting color filter”, which may have a significant impact on verification preciseness, are displayed on screen for a user-friendly configuration, which would be conventionally difficult without professional knowledge.

- **Digital display of focus and diagram**
  - The print position of characters and logo marks can be automatically aligned with the Vision System. High-level collaboration with Hitachi IJ printers allows more precise print verification.

- **Supporting precise print verification**
  - Various corrective functions available
    - **Rotation correction**
      - Even where the moving work rotates (180°), the immediate rotation correction allows stable print verification.

- **Simplified item setup by following the on-screen guidance**
  - Simplified setup by following the on-screen guidance.

- **Storage of verification results and error patterns**
  - The time and the verification results can be saved as traceability information.

- **Automatic adjustment to print data changes**
  - The calendar and count function are built-in for automatic catch-up with print data change such as the date of manufacture, best-before date, and serial lot number. The offset function is provided for automatic calculations in compliance with the period of print data change.

- **Versatile**

- **Units**
  - Providing flexible print verification
    - Corresponding to color camera
      - A color camera can be used to judge color differences that would not otherwise be identifiable by a monochrome camera. Software color filters eliminate the need for users to select lighting and match color filters.

- **Simplified adjustment guide**
  - Simplified item setup by following the on-screen guidance.

- **Supporting the setup process**
  - Simplified adjustment guide
    - For general verification, parameters, such as “setting binarized level” and “setting color filter”, which may have a significant impact on verification preciseness, are displayed on screen for a user-friendly configuration, which would be conventionally difficult without professional knowledge.

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Hitachi's Vision System MC-20S features a versatile, easy to use and quick starting interface. The forward-looking collaboration with Hitachi Printers means that the system instantaneously checks date and serial numbers for error.

The Vision System not only eliminates printing errors which visual checks may overlook, but also by adopting HITACHI’s unique adjustable method, it also prevents unnecessary product rejection resulting in a significant savings. As a key component to Hitachi Industrial Equipment, the MC-20S becomes an effective complement to Hitachi IJ printers.

Features

- HITACHI original adjustable matching method optimally suited for ink jet printers
- Featuring a color camera for flexible print verification
- Dedicated white LED strobe lighting and controller power supply
- Optimally adjusted focus and lighting previously reliant on individual intuition
- Print interpretation (Binarization) setup is easier, by suggesting the optimal color filter values

Hitachi Vision System

Simple

Constantly striving for user-friendly configuration and operation

Reliable

Reliable print verification with years of solid performance

Versatile

Versatile functions helping achieve total marking

Specifications

- **Color camera**: Monochrome VGA, or Color VGA camera
- **Lighting**: White LED strobe lighting x 2
- **Light controller**: Dedicated light controller
- **Camera Interface**: Touch panel display
- **Camera**: Color camera
- **Lens**: Lens(8mm)/Lens(12mm)/Lens(16mm)
- **Weight**: 30lb
- **Touch panel display**: Color 15.0 inch TFT LCD, Resistive touch panel

Hitachi Vision System MC-20S

For further information, please contact your nearest sales representative.

Information in this brochure is subject to change without notice.

Hitachi Industrial Equipment Systems Co., Ltd.