HITACHI
Inspire the Next

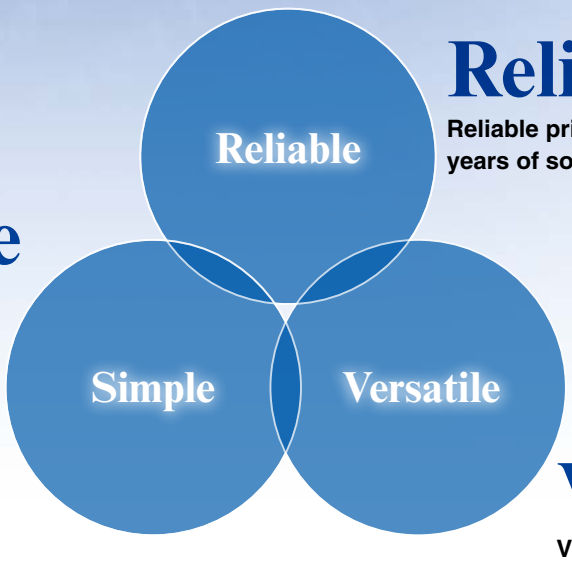
Hitachi Vision System
MC-20S

PAKTEC

A good partner to bring a lot of excitement to the coding and marking industry.

Hitachi Vision System MC-20S features a versatile, easy to use and quick start interface. The Vision System instantaneously checks and eliminates the printing errors which visual checks may overlook.
By adopting Hitachi's unique adjustable matching method, it also prevents unneeded product rejection resulting in significant savings.

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



Reliable

Reliable print verification with years of solid performance

Simple

Constantly striving for user-friendly configuration and operation

Versatile

Versatile functions helping achieve total marking

Hitachi Vision System MC-20S supports the efficiency of marking process at a variety of production lines in combination with Hitachi IJ printer.

Paper Cartons

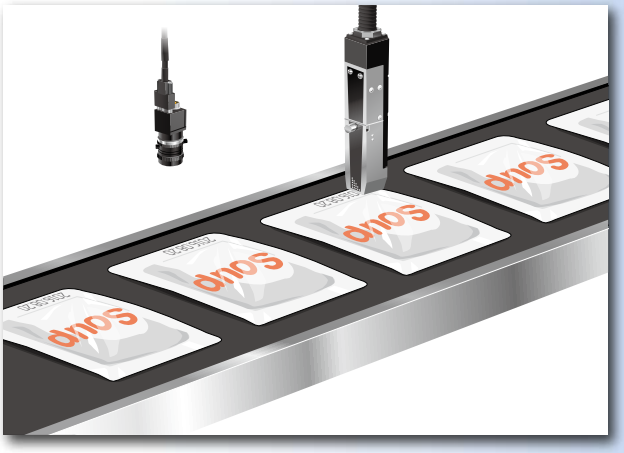
Never misses a print defect,
and contributes to traceability management.

Bottle Labels

Flexible systems can be proposed
to suit the print verification lines.

Sealed Pouches

Stable verification can be made by
reducing the halation on the surface of pouches.

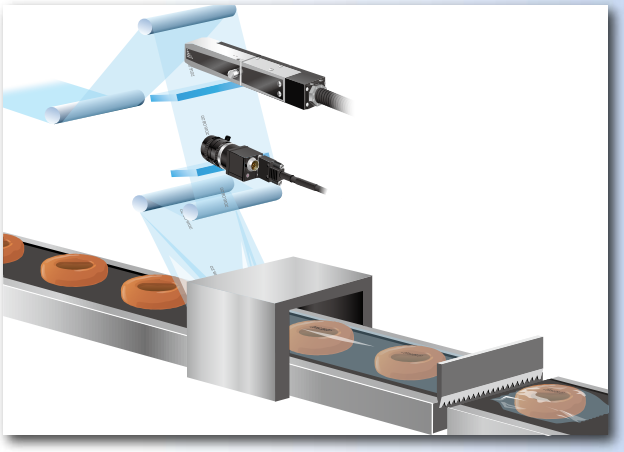


Canned Food

Stable verification can be made by rotation correction
even on the unstable conveyer line.

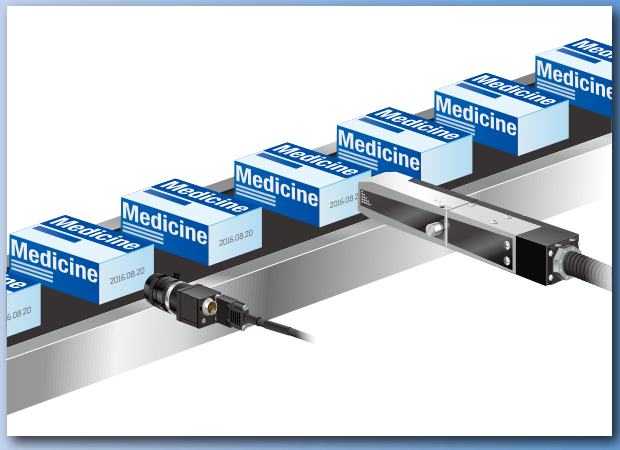
Packaging Film

Supports the stable verification with
incorporating the system into packaging equipment.



Individual Pharmaceutical and Cosmetic Cartons

Meets the customer's own strict management
of the quality and the shipment.



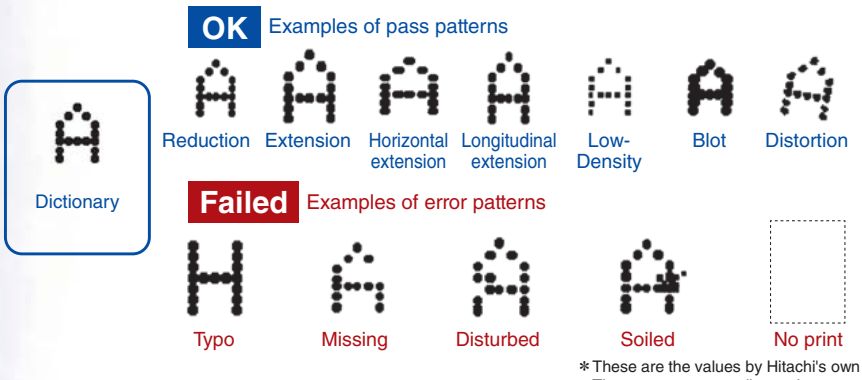
Reliable

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 tilt, which would otherwise be judged Failed by general image verification, to pass the verification stage and prevents unnecessary item rejection.



＊These are the values by Hitachi's own evaluation conditions.
They may vary according to the customer's evaluation conditions.

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 assessment.

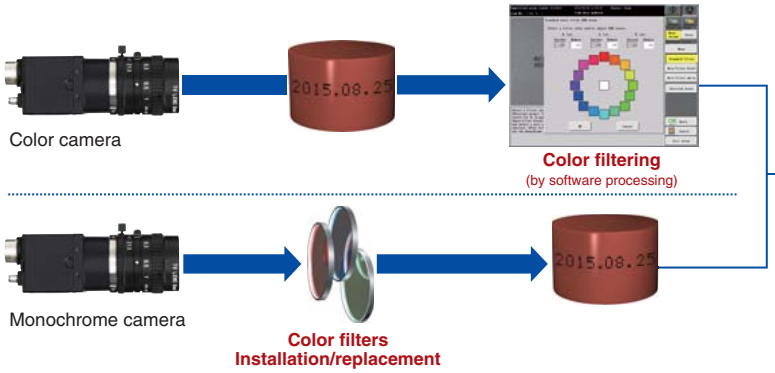
● Failed dictionary

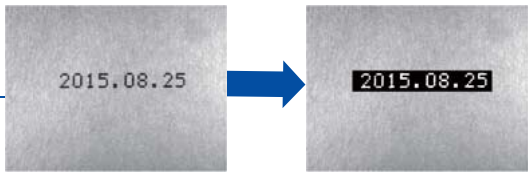
Characters which are likely to be mistakenly read can be registered as Failed characters. Registering character patterns users want to reject allows more precise print verification.

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.





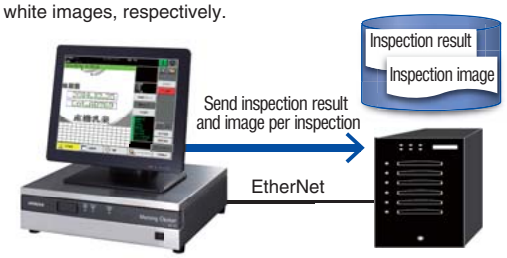
For stable verification, the text and background areas are separated into black and white images, respectively.

Images separated from original images for verification are binarized.

Storage of verification results and error patterns

Traceability and image saved

Verification results and times can be saved as traceability information.
Also, if connecting NAS (Network Attached Storage),
the each inspection result and image can be saved easily.

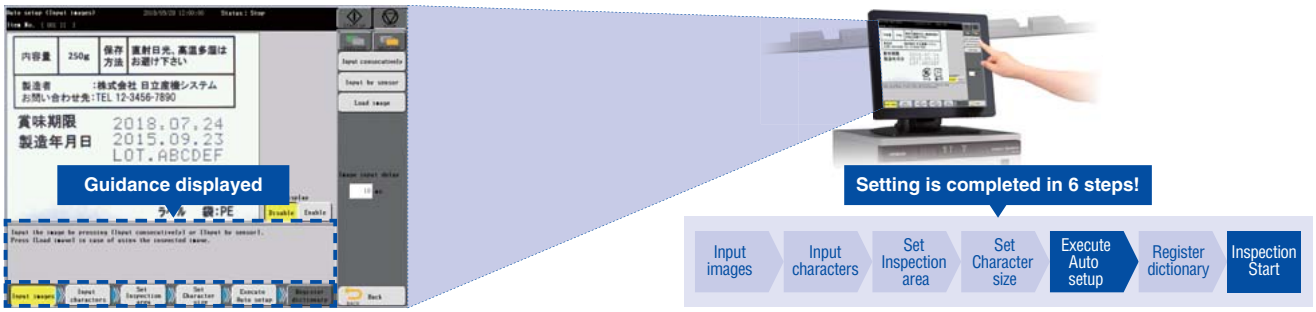


Simple

Supporting the setup process

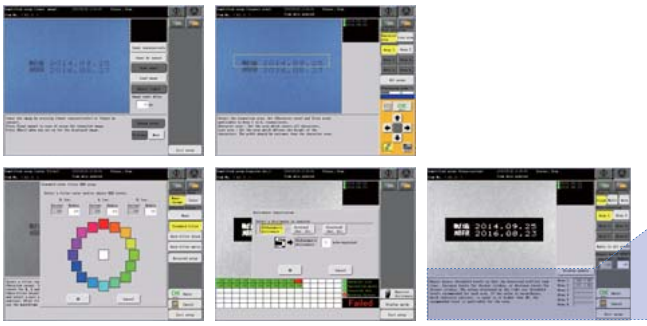
Automatic setting guide

The parameter needed for the verification can be automatically set by following the guidance on the touch screen.



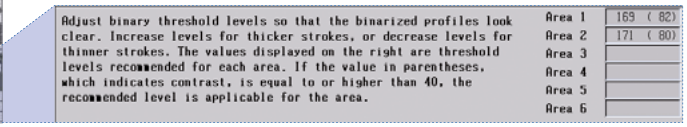
Simplified adjustment guide

Simplified item setup by following the on-screen guidance.



● Recommended value 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.



Versatile

Supporting for inspect variation

Inspect to various print data

● 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.

● Clustered characters

Character or logo are registered as the clustered character. This character enables various characters to be inspected.

● Read characters

Alphanumeric and External characters can be identified and inspected.
Character kind: Alphanumeric, External character

● Read QR code

QR code (Mode2) can be read.
Supported type: Version 1 to Version 4

● Multi-image integration

For long work inspection, the Multi-image integration is supported.

Supporting precise print verification

Various corrective functions

● Reference position correction

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

● Rotate correction

Even where the moving work rotates (±180°), the immediate rotate correction allows stable print verification.

● Italic cutout

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

Reinforced by combination

Collaboration with Hitachi IJ printer

High-level collaboration with Hitachi IJ printer. Switching items and changing printed characters on the printer side can be automatically aligned with the Vision System.

Specifications

Item		Model		
		MC-20SW0	MC-20SW1	MC-20SW2
Verification characters		Characters marked by IJ printer, laser, thermal and stamp		
Verification method		Character matching, presence and area		
Number of verification areas		Max. 6 areas		
Number of verification characters		Max. 16 characters per area		
Maximum Inspect Speed *1		Color camera : Max. 500 pieces/minute Monochrome camera: Max. 1,000 pieces/minute		
Inspection characters	Standard characters	Alphabetic [A-Z, a-z], Numeral [0-9], General symbol [. –' / :+]		
	External characters	50 characters		
	Clustered characters	8 characters		
	Calendar characters	Year, Month, Day, Hour, Minute, Week number, Day of the week Calendar substitution function: 99 rules		
	Count characters	Count-up, Random inspection		
	Read characters	Read character inspection (Numerals, Alphabets and External characters)		
	Barcode	Read QR code inspection		
Tilt of characters		Within ±3°		
Correction function		Reference position correction, Rotate correction (±180°), Shading correction		
Tilted segmentation		Fixed: Within ±30°, Auto: Within ±20°		
Data store	Number of registered items	Max. 240 items		
	Character dictionary	Standard characters, External characters: 20 patterns per character. (OK characters: 10 patterns, NG characters: 10 patterns) Clustered characters: 1 pattern per character.		
	Save of images	Latest NG images: 100, latest OK images: 8		
Simplified total storage function	Storage contents	Inspection results and images (Original pictures)		
	Storage speed *2	Max. 200 pieces/minute		
Auxiliary function for Maintenance		Inspection number display (Total count, Passed, Failed), Statistics of failures (Total inspections, Total count, Fail total, Fail ratio, Breakdown of failure cases), LED Check emission counter, Strobe emission counter, I/O signal test, etc.		

*1 The number varies depending on the verification details.
*2 The number varies depending on NAS.

Item		Model		
		MC-20SW0	MC-20SW1	MC-20SW2
Camera interface		Color VGA, or Monochrome VGA camera		
Connectable cameras		1		
Light		—	White LED strobe lighting x 2 (Bar LED)	White LED strobe lighting x 1 (Flat LED)
Light controller		—	Dedicated light controller	
Touch panel display interface		15.0 inch TFT LCD, Resistive touch panel		
External storage for Image		USB memory/USB HDD/NAS *3		
I/O Signals	Input	Object sensor, Encoder, Clear error, Reset count, Test mode		
	Output	Status indicator light (Run, Failure, Error), Inspection results, Inspection ready, Unit ready, Inspection complete, Test mode, External strobe output		
External communication (Serial communication)	Function	Hitachi IJ printer communication (Recall the Registered items, Set the Inspection characters and Date/Time setup), Host communication (Recall the Registered items, Set the Inspection characters and Date/Time setup, Output the Inspection characters)		
	Specification	Serial interface: RS-232C (at baud rates selectable up to 57,600bps)		
Ethernet communication	Function	Modbus communication, FTP communication		
	Specification	IEEE802.3, 10BASE-T, 100BASE-T		
Conveyor specifications		Encoder, Tracking, Object sensor filter, Object sensor timer, Sampling ejection, Number of ejections		
Power supply		AC100-120/200-240V±10%, 50/60Hz±1%		
Electricity consumption		120VA or lower		
Ambient temperature and humidity		0-40˚C/32-104°F, 30-80%RH		
Operating environment		No condensation, no dust, nor corrosive gas		
External dimension of Main body/Weight		Approx. 400×360×117mm (WxDxH)/Approx. 8kg/18lbs		

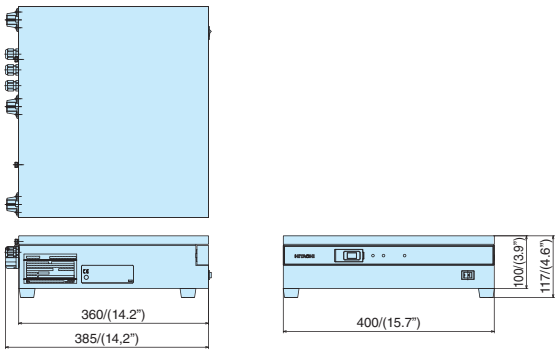
*3 It does not guarantee connection with all devices. For detail, please contact us.

Option

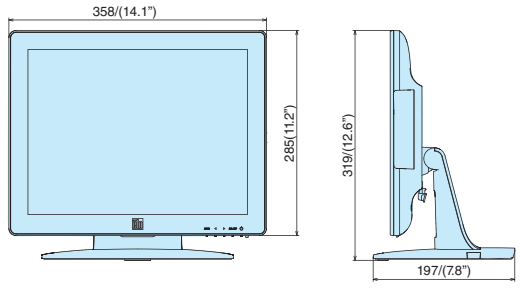
・Touch panel display
・Lens(8mm)/Lens(12mm)/Lens(16mm)
・Camera: Color camera/Monochrome camera

External dimensions [mm/(inch)]

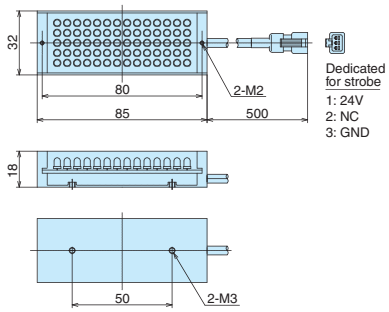
Unit



Touch panel display Option

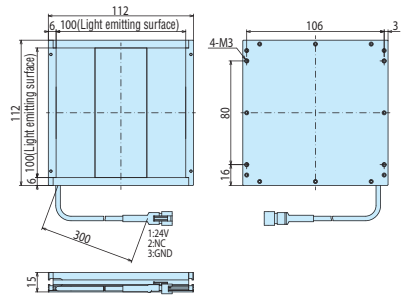


White LED strobe lighting (Bar LED)

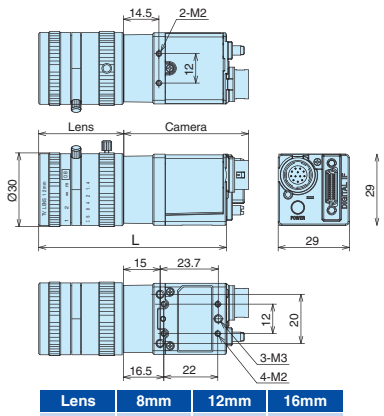


5m cable connecting to Unit is attached

White LED strobe lighting (Flat LED)



Lens and Camera Option



Lens	8mm	12mm	16mm
L	76.5	76.5	66.5

5m cable connecting to Unit is attached

Information in this brochure is subject to change without notice.

Hitachi Industrial Equipment Systems Co., Ltd.

The Marking Systems and Hoist Systems Division (Taga Division) of Hitachi Industrial Equipment Systems Co., Ltd. obtained international standard ISO 9001 certification for the quality assurance of the Ink Jet Printer and the Vision System contained in this brochure.

Registration number: JQA-QMA12087
Registration date: April 1, 2005

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