



Marking & Coding Solutions

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Invest in a Sustainable Coding Future RELIABILITY Highly reliable design and

superior construction

HITACHI

UX2

EFFICIENCY Environmentally friendly with low operational costs

> EASE OF USE Simple touchscreen operation with video-based guidance

For over 45 years, Hitachi has developed and produced high-performance inkjet printers based on the well-proven Continuous Inkjet (CIJ) principle for industrial marking.

Hitachi Industrial IJ printers are **high-speed printers** adopting a **non-contact printing method**, ideal for a **wide range of applications**. They are capable of applying best-before dates, logos, barcodes, lot numbers and data matrix codes, which makes the **new UX2 Series the perfect solution** for both complex and standard applications.

Highly Reliable

Hitachi products are renowned for being extremely reliable in harsh environments. All functionally critical parts are manufactured in-house. The use of Hitachi's own components reinforces the high quality levels, reliability and excellent value for money.

Cost-Effective

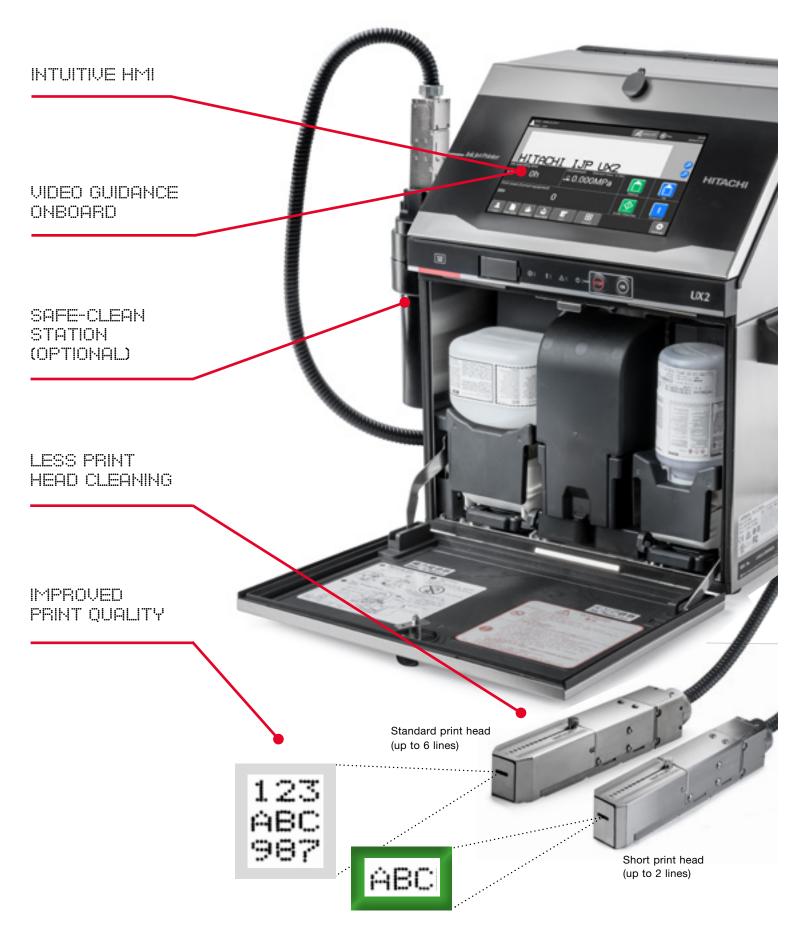
The new, economical ink recovery technique achieves industry-leading levels of solvent consumption and the very low maintenance costs minimize the total cost of ownership.

Global Sales & Service Network

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Are you looking for a global company that can work with you at a local level? Hitachi offers a global sales and service network when marking, coding and traceability challenges demand a coordinated answer. For each of your locations, and across your entire organization, we will champion your goals by providing international consistency, a global perspective, broad expertise and coordinated services provided by dedicated contacts. Our global team applies its worldwide technical expertise to your unique challenges in a consistent way. Tangible deliverables and proven solutions are the results of our business analysis and project implementation. In addition, we offer cross-border project management and coordination between suppliers, OEMs and end-users. You gain more visibility and save time and money.

Overview of UX2



 $^{\cdot 1}$ Standard print head of 40µm (UX2-D140W): up to 4 lines

 $^{\cdot _2}$ No optional shorter print head for 40 μm

Newly Designed To Stay Cleaner, Longer

Increased Production – Less Downtime

Conventional Printers

With **conventional print heads**, ink mists^{*1} are deposited onto components that control the inkjet. Over time, the build-up of ink can result in **downtime leading to lost production**.

*1 Ink mist build-up may vary depending on operating conditions.

Prints 3 Times Longer with Ink Guard"

UX2 printers can print for 3 times longer than previous generations^{*2} due to a unique print head design. The ink guard feature attracts the ink mist to a collection area away from the sensitive printing components. The result is fewer print quality issues and less frequent print head cleaning. Keeping your production running while maintaining a clean production environment.

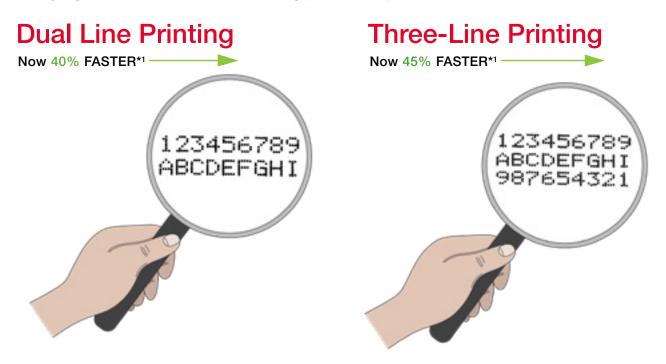
¹ Ink guard not not equipped in UX2-D140W

² Results refer to the same test environment and test conditions compared with UX Standard.



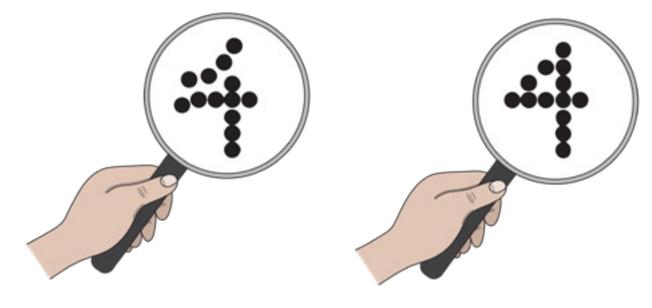
Clear, Precise Codes at the Most Demanding Speeds

Using improved **dot control algorithms**, our newly designed UX2 printer is capable of producing **clearly legible codes** at the **most demanding production speeds**.



Available with Two Head Sizes to Optimize Print Quality

Our standard head produces crisp code quality from 1 to 6 lines^{*2} of print. A field configurable "short" print head option focuses on the most demanding print speed applications that require 1 or 2 lines of print.^{*3}



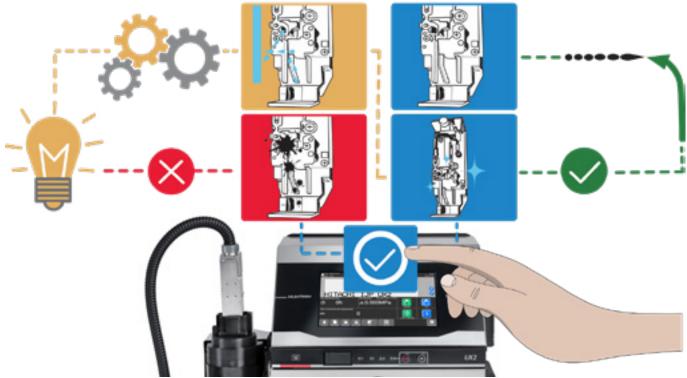
Added Convenience and Safety

The sealed Safe-Clean Station thoroughly cleans and dries in one simple operation. Eliminate the need for open solvents when cleaning the print head. As the solvent volatilized during drying is sucked out by the air pump and discharged through the exhaust duct, the operator is not exposed to the solvent gas. All used make-up cleaning solvent is captured in a sealed reservoir - for safe disposal.



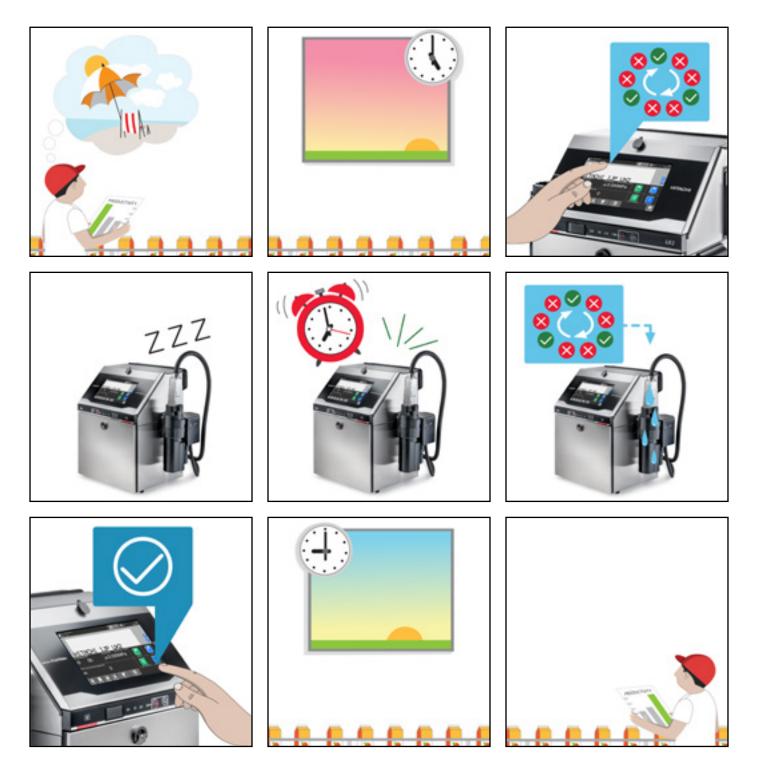
Self-diagnosis by new Smart Start function

Most of the downtime associated with inkjet printers is a result of a dirty nozzle. The self-diagnosis start-up with Safe clean station can be used to automatically clean the nozzle by reversing the flow of solvent when necessary, which helps ensure that IJP restarts smoothly.



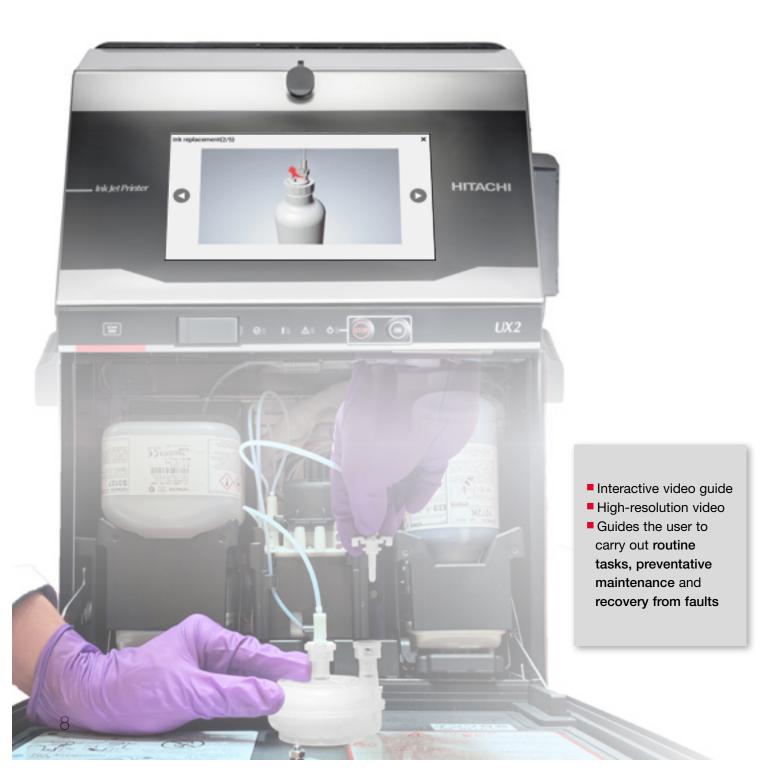
Always ready to print

Even after long periods of inactivity, the cleaning station eliminates build-up of dried ink by periodically running an automatic nozzle-rinse according to a pre-programmed schedule. This means that the printer is always ready to print and will not need any manual cleaning at start of production.



Video on Board, for Preventative Maintenance and Recovery

An interactive video on the printer screen guides users to carry out routine tasks, preventative maintenance activities and even recover the printer from a fault condition. It's so intuitive, even untrained users can easily follow the on board video guidance. As a result, daily interaction with the UX2 is instinctive with no surprises. When needed, users will be guided by the video to clean the print head and add fluids.



Flexibility to Meet Your Needs

The printer screen is designed with **flexibility in mind**. With a **configurable home screen**, you can choose what information is critical to display to operators.

Choose the information critical to your production needs.

Icon-Based Display

An intuitive screen with icon based indicators allowing users to quickly identify machine status, and ink levels.

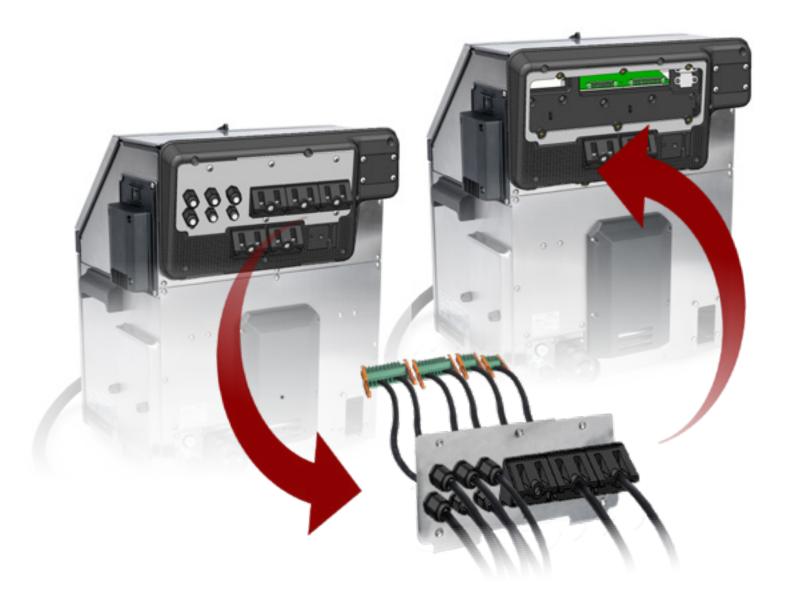


Familiar tablet-style touch screen allows swipe functionality similar to smartphones and tablets.

Quick Line Changeovers

Move Printers with Ease

Our quick-change I/O connectors enable printers to **quickly move from line to line**. **Eliminate time-consuming mistakes** by preconfiguring the I/O routing in advance.



Integration with modern industrial protocols

Modern Communication Protocols

By employing modern open protocols such as OPC-UA, Hitachi's printers are ready for the upcoming Industry 4.0/IoT revolution. This open-style data connectivity enables our printers to be compatible with virtually any networked platform, regardless of OS. In addition, the latest UX printers come equipped with Ethernet/IP, OPC-UA, Modbus and Serial RS-232. Hitachi is currently the first CIJ manufacturer to gain ODVA* approval for Ethernet/IP.

* ODVA is a trade and standards development organisation, based in Michigan, USA.

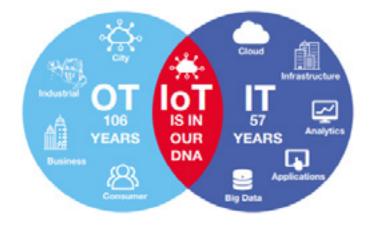






Improve Operations, Quality and Transformation with IoT Analytics

Hitachi is one of the few companies in the world with decades of **experience and deep expertise in both OT (operational technology) and IT**. In the industrial arena, we're developing data-driven smart manufacturing and maintenance solutions that are **rapidly displacing traditional processes**.



Hitachi's vision is to be a **climate change innovator**. Our mission is to resolve environmental issues and achieve a **higher quality of life** through a more **sustainable society**.

Sustainable Design

The UX2 series employs innovative and sustainable pump technology that not only ensures high reliability and lower operating cost, it also reduces VOC* emissions by restricting the amount of air being sucked into the ink circuit at the printhead.

*VOC Volatile organic compounds are found in inks and make up



MEK Free Inks

Hitachi's MEK-Free inks are designed to operate with UX2 series printers. They offer a sustainable alternative to standard inks that can reduce the frequency of refills and level of emissions. It will cut your cartridge waste by up to a third.



We are committed to creating resource efficient **eco-friendly** coding and marking solutions.

Safe-Clean Station

A safe operating environment is important for all manufacturing employees. Hitachi has created an innovative automated printhead cleaning station, that not only keeps operators free from fluid contamination, but also professionally cleans the printhead using the minimum amount of fluid. This means significant time savings and reduction of waste liquid.

Power Save Mode

Thanks to the pump design, the power consumption of the printer when printing is already one of the lowest at 73VA. However, the Hitachi UX2 series also incorporates a selectable power save mode that either dims or turns off the touch screen after 3 minutes when it's not being programmed, further reducing your energy bills and carbon footprint.

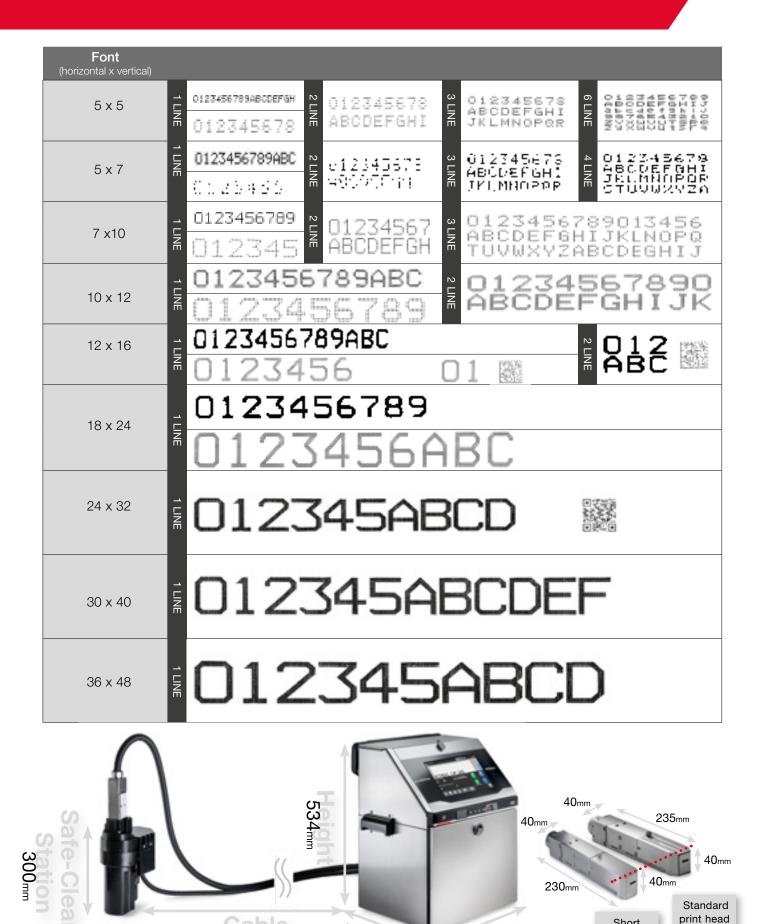
Find out more about Hitachi's global environment and initiatives.



Printer Specifications

		UX2 UX2-D160W	UX2 UX2-D140W			
Nozzle size		65µm	40µm			
Max. number of print lines		up to 6 lines	up to 4 lines			
Max. number of print characters		240 characters (option: up to 1,000 characters)	up to 4 lines			
	4x5	1 to 6 lines (Short printhead option : up to 2 lines)	up to 4 lines			
	5x5	1 to 6 lines (Short printhead option : up to 2 lines)	up to 4 lines			
Font (Horizontal × Vertical)	5x8 or 5x7	1 to 4 lines (Short printhead option : up to 2 lines)	up to 4 lines			
	9x8 or 9x7	1 to 4 lines (Short printhead option : up to 2 lines)	up to 4 lines			
	7x10	1 to 3 lines (Short printhead option : 1 line)	1 to 3 lines			
	10x12	1 to 2 lines (Short printhead option : 1 line)	1 to 2 lines			
	12x16	1 to 2 lines (Short printhead option : 1 line)	1 to 2 lines			
	18x24	1 line	1 line			
	24x32	1 line	1 line			
	30x40	1 line				
	36x48	1 line	-			
Character height (based on 1072K lnk)		2-10mm (optional short print head: 2.0-6.5mm)	0.6 - 6mm			
Input device & display		Display: 10.1" color TFT LC	WYSWYG design Display: 10.1" color TFT LCD, WSVGA(1024×600) Input device: Touch panel, input sound provided			
Languages		English, Italian, Dutch, Spanish, German, French, Swedish, Russian, Greece, Czech, Danish, Portuguese, Polish, Serbian, Turkish, Hungarian, Bulgarian, Catalan, Rumanian, Finnish, Norwegian, Slovenian, Croatian, Hebrew, Ukrainian, Thai, Arabic, Vietnamese, Burmese, Bengali, Korean, Special Kanji (Simplified Chinese), Traditional SP Kanji (Traditional Chinese)				
Maximum print rate (character per second) (Font 4×5, space 1 dot, 1 line, 76.9kHz)		Up to 1,538 (option: up to 3,076)	Up to 3,030			
Standard characters		Alphanumeric(A~Z, a-z,0~9), sym	Alphanumeric(A~Z, a-z,0~9), symbols(27) and space: Total 90			
User pattern		200 patterns each for dot matrix (50 patterns for Free size)				
Barcode print		Code39, ITF, NW-7, EAN-13, EAN-8, Code128/EAN128 (GS1	Code39, ITF, NW-7, EAN-13, EAN-8, Code128/EAN128 (GS1-128), UPC-A, UPC-E, GS-1 Databar, EAN-13 Add-on 5			
2D code printing		QR code (GS1-QR, Alphabetical charac	Data Matrix (GS1-DM, Alphabet: 49 characters/Numericals: 98 characters), QR code (GS1-QR, Alphabetical characters only: 90, Numbers only: 149), Micro-QR code (Alphabetical characters only: 11, Numbers only: 18), DotCode			
Print functions		Calendar, Count, (Option: Shift code)				
Message storage capacity		300 messages (option: up to 2000 messages) 2000 messages				
Input signal		Print target detection, Printing stop, Rotary encoder pulse, Reciprocative printing, Remote control (Run, Stop, High-voltage ON/OFF, Reset), (NPN/PNP selectable)				
Output signal		Print in progress or Print complete, Online (NPN/PNP selectable), Print ready, Fault, Warning (NPN only)				
Customizable screen		√ 				
Animation guidance		√ √				
Safe-Clean-Station		Option	Optional			
Data interface		USB/RS-232 Converters at baud rat	es selectable up to 115,200bps			
Ethernet communication		Modbus, EtherNei	Modbus, EtherNet/IP, OPC-UA			
Print head cable length / angle		4m / 6m (optional), (in-line/90 degrees)	4m (in-line/90 degrees)			
Operating temperature range		0~50°C (1067K lnk)	0~35°C (1067K lnk)			
Operating humidity range		30~90%RH (no c	30~90%RH (no condensation)			
nternational protection		IP65	IP65			
Power supply (Automatic voltage selection)		AC100~120/200~240	AC100~120/200~240V±10%, 50/60Hz			
Dimension		460×425×534mm (Wid	460×425×534mm (Width×Depth×Height)			
Approximate weight		27 kg (60 lbs)				





425_{mm}

460mm

 $^{\cdot 1}$ No optional shorter print head for 40 μm $^{^{\prime 2}}$ Dimensions of 40µm print head: 40mm x 40mm x 218,2mm (height x width x length)

Short

print head

Sales Offices

America

Hitachi Industrial Equipment & Solutions America, LLC Phone: +1 866 583 0048 www.hitachi-iesa.com/marking Marking.lnfo@hitachi-iesa.com

Asia

Hitachi Asia Ltd. Phone: +65 6305 7400 www.hitachi.com.sg/ice

China

Hitachi Industrial Equipment Systems (China) Co., Ltd. Phone: +86 21 5489 2378 www.hitachi-iec.cn

Europe

Hitachi Europe GmbH Phone: +49 211 5283 0 www.hitachi-industrial.eu info@hitachicoding.com

Oceania

Hitachi Australia Pty Ltd. Phone: +61 2 9888 4100 www.hitachi.com.au/products



Learn More





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DB-UX2-D160W-06/22-EN



Nº202

Vision System

Coding & Marking Solutions Vision System Designed for Inkjet Printing

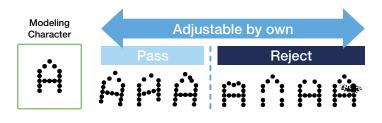


- Specifically developed to accurately read inkjet codes regardless of the printer brand being used
- Isolation of each character to detect code degradation
- Threshold grading system individually set for your application

By designing a vision system specifically for inkjet printers, any code that is readable by the human eye can also be passed by the vision system, getting more production out the door. This is part of the Hitachi Communication Solutions, which help leverage technology on your production lines to improve your efficiency.

How it works





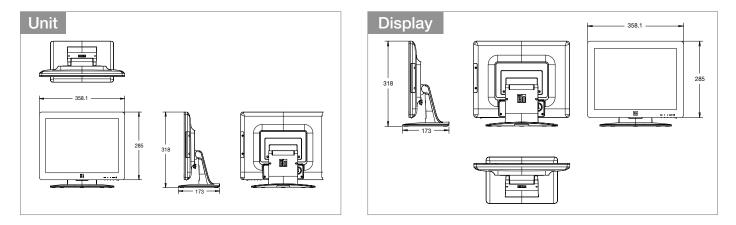
Specifications

Item		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 characters	verification	Max. 16 characters per area				
Maximum I	nspect Speed *1	Color camera : Max. 500 pieces/minute Monochrome camera: Max. 1,000 pieces/minute				
	Standard characters	Alphabetic [A-Z, a-z], Numeral [0-9], General symbol [' / :+]				
Inspection characters	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 i	nspection			
	Read characters	Read character inspection (Numerals, Alphabets and External characters)				
	Barcode	Read QR code inspe	ction			
Tilt of characters		Within ±3°				
Correction function		Reference position correction, Rotate correction ($\pm 180^{\circ}$), Shading correction				
Tilted segmentation		Fixed: Within $\pm 30^{\circ}$, Auto: Within $\pm 20^{\circ}$				
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			ictures)			
storage function	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 tota Fail ratio, Breakdown of failure cases), LED Check emission counter, Strobe emission counter, I/O signal test, etc.				

Item		MC-20SW0	MC-20SW1	MC-20SW2		
Camera interface		Color VGA, or Mono	Color VGA, or Monochrome VGA camera			
Connectable cameras		1	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	15.0 inch TFT LCD, Resistive touch panel			
External storage for Image		USB memory/USB HDD/NAS *3				
	Input	Object sensor, Enc	oder, Clear error, Res	et count, Test mode		
I/O Signals	Output	Status indicator light (Run, Failure, Error), Inspection results, Inspection ready, Unit ready, Inspection complete, Test mode, External strobe output				
External communi- cation (Serial communi-		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)				
cation)	Specification	Serial interface: RS-232C (at baud rates selectable up to 57,600bps)				
Ethernet communi-	Function	Modbus communio	dbus communication, FTP communication			
cation 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				

*1 The number varies depending on the verification details.
 *2 The number varies depending on NAS.
 *3 It does not guarantee connection with all devices. For detail, please contact us.

Extra dimensions (mm)







UX-Lab UP1

19 Address Port 192 198 0.32 942

40125

UX-Lab IJP2

17 Address Port 192.148.0.33 542 Step 2022-05-22 13:42:15

(1) Ready 2022-09-22 13:42:15

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Line1-Milk Car

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Line1-Mik Tre

111-11 UN LAD 191 Line2-Milk Carton

Stop C to Visconty Mich Mich (1993)

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Line2-Milk Tray

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dens Port 68.8.28 952

PADDeck Port 192,348.8.2 592

Coding & Marking Solutions Software Suite

Coding Software Suite

As the core of Hitachi's Coding & Marking Solutions, the Coding Software Suite (HCSS) from Hitachi has a client/server architecture with flexible web browser based user interface for operators to design labels, control, manage and monitor coding marking devices such as printers and vision system , access the printer dashboards and configure and manage automated printing applications dynamically.

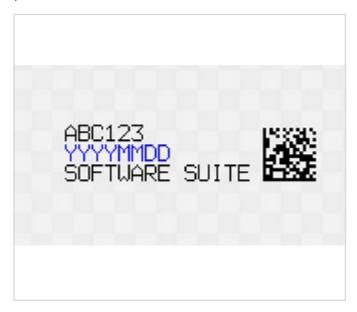
Client Server Web Based

Install once, access anywhere via web browser on PC, tablet or smartphone.



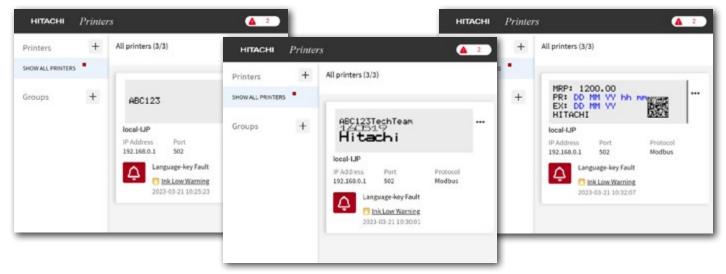
Message Designer

Powerful WYSIWYG (what you see is what you get) message designer for Hitachi Continuous Inkjet printers.



Device Management

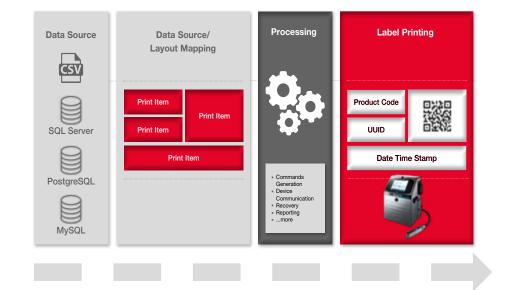
Individual printers, printer groups and/or vision system (MC20S) can be managed as the target devices and the statuses of these networked devices can be viewed in one aggregated view or individually in detail. Message preview and Basic device remote operations available for IJPs. Basic MC20S remote operations are also available

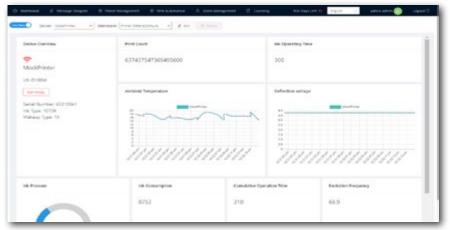


End to End Coding Automation

Printing Automation

Powerful and configurable platform to fetch data from local or remote customer data source and dynamically populate labels to meet various application requirements.





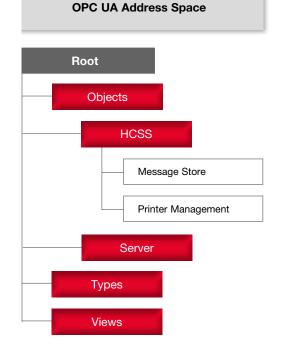
Dashboard

All critical printer status and data can be viewed from predefined or customized dashboards to remotely monitor and manage printers on production lines.

OPC-UA Connect

Flexible OPC-UA server application, provides powerful business logics and bridge to connect customers' MES and ERP system to network printers.





End to End Coding Automation

Message Designer

User-friendly HMI allows users to manage:

- Message style
 - Individual
 - Free layout
- Print format
 - Set number of lines
 - Add/remove columns
 - Bold, Dot Matrix, Inter-Character and line spaces
- Print specification
 - Character height
 - Ink drop use
 - Character width and orientation
 - Print start delay
 - Product speed matching
 - Speed and fine control compensation
 - Encoder pulse rate division factor
 - Line speed
 - Print distance (Head to target)
 - Print target width
 - Actual print width
 - Repeat count and intervals
 - Target sensor timer and filter
 - Ink drop charge rule
- Calendar and count condition

Create the message with diverse contents, e.g:

- Alphanumeric
- Calendar
- Counter
- Time counter
- Logo (*bmp) elements
- GS1 compliant 1D and 2D codes
 (See HCSS user-manual for supported codes)

Powerful message management, persistence and control can transfer the created message between the file system/database and the printer or printer groups.

WYSIWYG message preview and listing.

Device Management

- Printer registration management add/remove printers or printer groups
- Printer grouping management create and edit printer group
- Send and print message to group printers simultaneously
- Printer message previewing
- Remote operation (start, shutdown, ready, standby, fault clear, Online/Offline)
- Vision system registration and statues monitoring.
- Basic vision system remote operation
- Marking Check job management.

Monitor with real time status of printers or printer groups:

- Ink operating time
- Ink (remaining) level*
- Makeup (remaining) level**
- Ink pressure
- Ink/Makeup replacement warning
- Print count
- Maintenance and environment information
- Dynamic printer alarm management Individual and grouped printers overview on a single screen. Preview of data source & message layout.

* available from UX-D Series only

** UX-B and UX-D860W are not supported

Printing Automation

- CSV, Text or Databases data source (SQL server, PostgreSQL, MySQL) connections.
- IJP Protocols support for Modbus (TCP) or RS-232C (Tunneling)
- Data preview
- User friendly mapping between label items and data source fields
- Dynamic Print Automation Jobs
- Preview of data source and message layout
- Individual or group target printers setting
- Automatic print speed
- Repeat printing function
- Multiple print job creation
- Print job status monitor and reporting

OPC-UA Connect

- Connect with HCSS using OPC-UA Protocol
- List IJPs
- Read IJP Parameters
- Operations can be performed e.g:
 - Set/Reset Print Count
 - Get Alarm Count
 - Get Alarm History
 - List Messages
 - Send Message to Printer
 - Send Message to Group
 - Update Message
 - Read Current Message
 - Built-in customer business logics

Dashboard

Display detailed status overview of all connected printers using a collection of different widget types

- Various dashboards to display available printer status data and remaining operation time for parts which require regular maintenance and replacement
- Dashboards can be customized by resizing, replacing, and repositioning widgets
- Switch between Live and Historical mode
- Selection date-range (Date/Time) for filtering data
- Reported parameters include:
 - Ink/Make-up levels (UX Series only) Ink viscosity, Ink pressure, Ink use time
 - Ink/Make-up consumption
 - Print count, cumulative operating time, ambient temperature
 - Deflection voltage, Excitation V-Ref, Excitation frequency
 - Filters, Valves, Pump remaining usage time
 - Operation, Warning status
 - Printer Type, Serial Number
 - Basic OEE

Technical Specification

System requirements:

- Installation requires admin rights
- 8 GB RAM or higher
- Windows 10 64-bit OS
- 30 GB disk space (for large number of messages, additional disk space might needed)
- Installer manages all other prerequisites
- Recommend browser: Chrome

Display languages:

English, Japanese, Simplified and Traditional Chinese, Spanish, French, German, Portuguese, Vietnamese, Arabic, Korean

Printer support: RX-SD/RX2-SD (Modbus/TCP) UX Series*

* UX-B and UX-D860W are not supported

HCSS usability may be limited based on the used devices and screen sizes.

User Management

- Authorisation administration
- User registration and password management
- Role creation and definition
- Function and feature permissions management



30 days trial

URL: <u>https://hitachicoding.com/en/software-</u> suite/download-page 0

Hitachi Software Suite Help Center URL: <u>https://hitachicoding.com/en/</u> software-suite

Head Office

Japan

Hitachi Industrial Equipment Systems Co., Ltd. Phone: +81 3 4345 6000 www.hitachi-ies.co.jp info@hitachicoding.com

Sales Offices

America

Hitachi Industrial Equipment & Solutions America, LLC Phone: +1 866 583 0048 www.hitachi-iesa.com/marking InkJet-printers@hal.hitachi.com

Asia

Hitachi Asia Ltd. Phone: +65 6305 7400 www.hitachi.com.sg/ice

China

Hitachi Industrial Equipment Systems (China) Co., Ltd. Phone: +86 21 5489 2378 www.hitachi-iec.cn

Europe

Hitachi Europe GmbH
 Phone: +49 211 5283 0
 www.hitachi-industrial.eu
 info@hitachicoding.com

Oceania

Hitachi Australia Pty Ltd. Phone: +61 2 9888 4100 www.hitachi.com.au/products



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