

KEYENCE

Rugged Industrial Handheld Code Reader

NEW HR-X Series

ESD model now available



AI-Enhanced
Accuracy &
Reliability

DPM model

Ultra-Durable High Performance

High Speed
Reading & Large
Depth of Field

High Performance model



HR-X Series

Combining two strengths of KEYENCE expertise into one reader: Fixed Mount Performance + Handheld Durability



Same-day shipping

Orders are processed immediately to ensure products are delivered as quickly as possible.



Reading performance of fixed mount code readers

→ P. 6

Durability of handheld computers

→ P. 10



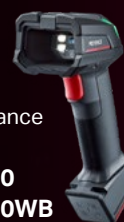
Varied lineup to suit any application

Rugged Industrial Handheld Code Reader

NEW **HR-X Series**



DPM model
HR-X500
HR-X500WB



High Performance model
HR-X300
HR-X300WB



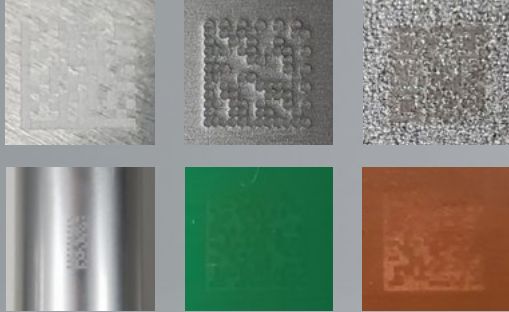
Standard model
HR-X100
HR-X100WB

Varied lineup to suit any application

Code reading difficulty

Difficulty Level 4

- Laser-engraved or pin stamped codes with no base processing
- Codes engraved directly on curved material surfaces
- Dirty, faded, discolored, etc. codes



Difficulty Level 3

- Codes covered in oil, water droplets, flux, etc.
- Codes covered with film
- Laser-engraved codes with base processing



Difficulty Level 2

- Codes marked on resin



Difficulty Level 1

- Worn or blurry codes
- Codes read at an angle



Difficulty Level 0

- Codes marked on paper



DPM model
HR-X500 / HR-X500WB

Instantaneous reading of challenging DPM and miniscule codes



Standard model
HR-X100 / HR-X100WB

Lightweight and durable with impressive performance even for challenging codes

300 mm 11.81"



**High Performance model
HR-X300 / HR-X300WB**

High-speed reading & large
depth of field for stable reading
of simple DPM

Reading distance

700 mm 27.56"

Instantaneous reading of challenging codes



Built-in AI chip for improved code reading

Pre-taught based on a database of over 100,000 images

AI filter

The built-in AI chip dramatically improves code reading performance and significantly reduces the need for readjusting the code reader.



Dirty code



AI filter



Uneven module color



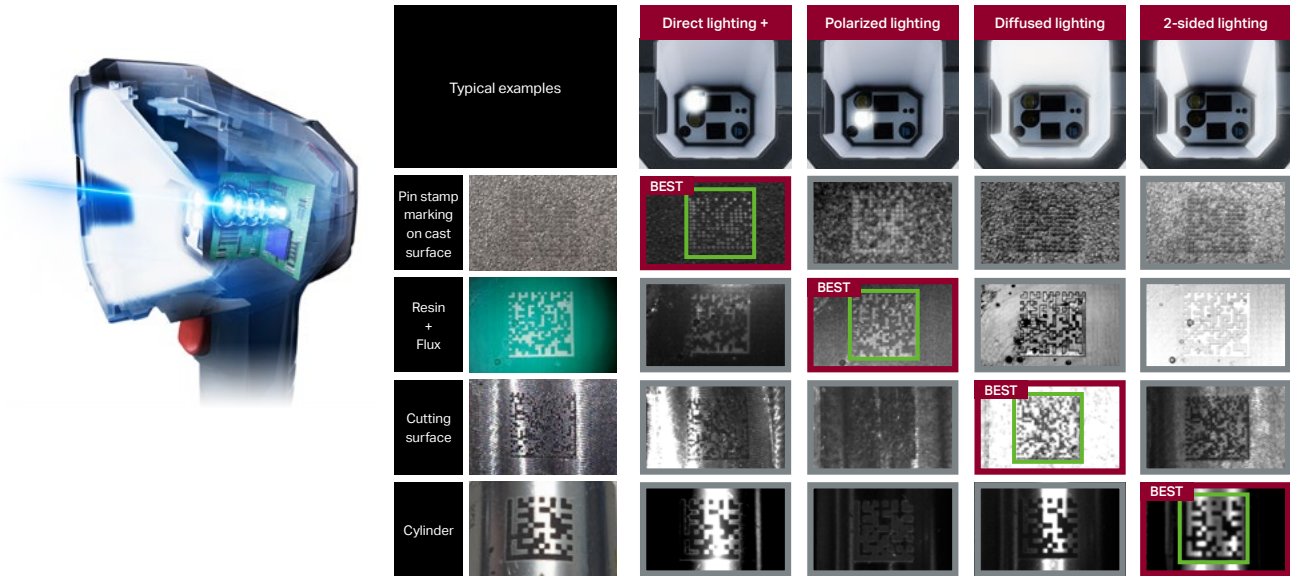
AI filter



Automatic light adjustment

DPM High Performance Standard

The HR-X Series includes the advanced direct, polarized, and diffused lighting found in the [SR-X Series](#) adapted for handheld reader use.

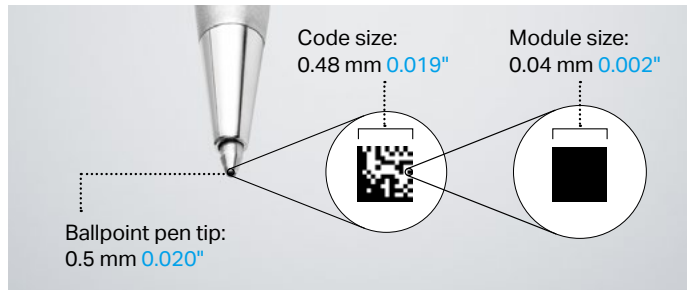
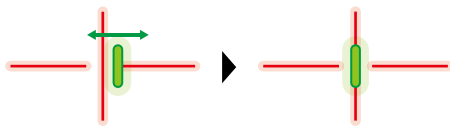


Non-contact reading of miniscule codes

WORLD'S FIRST

DPM High Performance Standard

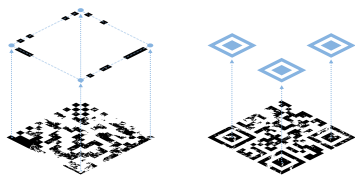
Introducing the world's first non-contact reading of miniscule codes with module sizes of just 0.04 mm **0.002"** thanks to an easy-to-align aimer.



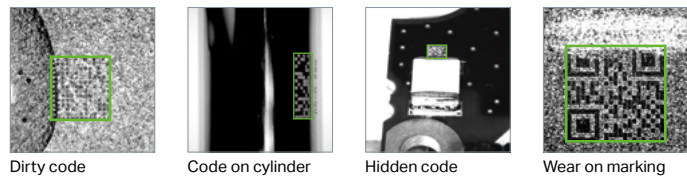
HR-X Drive reliably identifies damaged codes

DPM High Performance Standard

Pattern searching for damaged codes



Typical examples of alignment/finder pattern damage



HR-X Decoder with DPM and label support

<p>DPM High Performance Standard</p> <p>Codes covered in oil or flux Codes covered with film Laser-engraved codes on metal surfaces (with base processing)</p>			
<p>DPM High Performance Standard</p> <p>Codes on resin/PCB Laser-engraved codes on metal surfaces</p>			
<p>DPM High Performance Standard</p> <p>Worn/blurry codes Codes read at an angle</p>			

Dedicated DPM mode for improved readability of challenging codes

High Performance models include a dedicated mode that improves readability with difficult-to-read codes. This mode allows for reading of simple DPM and codes covered with film.

6-core processor* for high-speed performance and stable reading of challenging codes WORLD'S FIRST

DPM **High Performance** Standard

The HR-X Series is the first handheld code reader with a 6-core processor. Take advantage of two different core applications for high-speed reading and advanced reading of challenging codes.

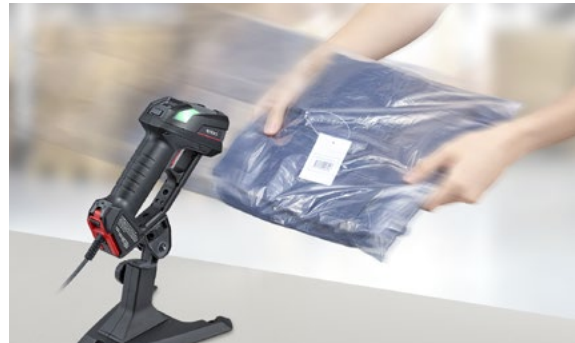
* DPM model. High Performance and Standard models include a 5-core processor.

Conventional systems		
High-speed reading core	Fast reading of simple codes	▶ Simple codes can be read quickly, but challenging codes cannot be read at all.
or		
Advanced reading core	Reliable reading of challenging codes	▶ Challenging codes can be read, but reading simple codes takes too long.
HR-X		
High-speed reading core	Fast reading of simple codes	▶ High-speed reading PLUS!
Advanced reading core	Reliable reading of challenging codes	

Impressive reading speed

DPM High Performance Standard

High-speed reading makes it possible to scan codes with hands-free installation.

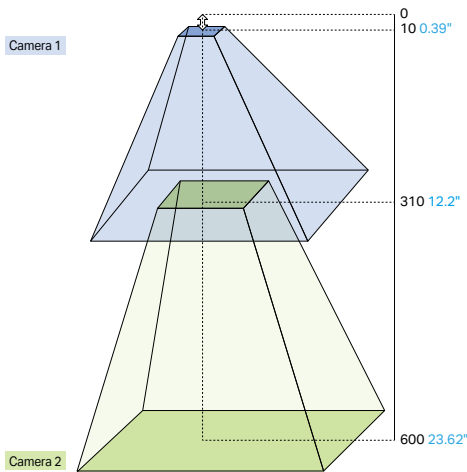


Dual-lens camera structure for flexible reading distances

DPM High Performance Standard

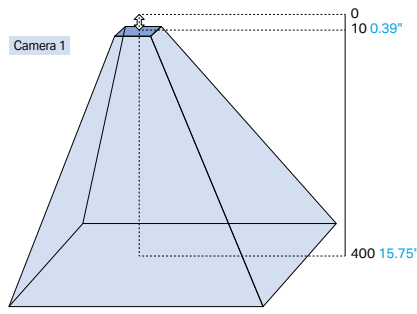
The built-in camera includes a dual-perspective design that automatically switches between modes for high-speed reading over a large depth of field. Eliminating the need to adjust the reading distance significantly improves reading efficiency.

High Performance



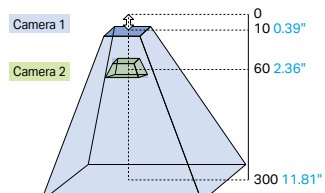
Barcode/NB width: 0.25 mm 0.01"

Standard



Barcode/NB width: 0.25 mm 0.01"

DPM



Barcode/NB width: 0.25 mm 0.01"
[Miniscule codes] 2D code/Module size: 0.04 mm 0.002"

Watch the video to learn more



* When using the High Performance model.

2.3-megapixel high-resolution CMOS

DPM High Performance Standard

HR-X Series handheld code readers are also equipped with 2.3-megapixel CMOS sensors offering high resolution over a wide field of view.

HR-X500	HR-X300	HR-X100
2.3 megapixels x 2 cameras	2.3 megapixels x 2 cameras	2.3 megapixels

Durable design that eliminates the most common causes of failure

Watch the video to learn more



Durable design

Ultra durable, elastomer shock-absorbing design



Central frame construction

Rugged structure that protects critical components from impacts

High oil resistance

IP65/67G

ISO 16750-1

Two-color molding is used to combine two different oil-resistant materials to prevent swelling and peeling.



Drop/repeated drop resistance

Drop resistance: 2.5 m 8.2'

Repeated drop resistance: 20,000 drops (30 cm 11.81")*

* These are test values and are not guaranteed.



Ultra durable trigger (10 million trigger lifespan*)

The HR-X Series' new design combines ease of use with ultra durability.

* These are test values and are not guaranteed.



Wireless charging that eliminates terminal wear

Wireless charging support means there's no need to worry about terminals deteriorating over time due to use and wear, helping to ensure a longer service life.

Damaged terminals in conventional model



The HR-UC2 charging cradle can be used to wirelessly charge the code reader.

No terminal wear



Watch the video to learn more



Easy setup with no software installation required

Setup via Web Navigator

Simple setup over USB



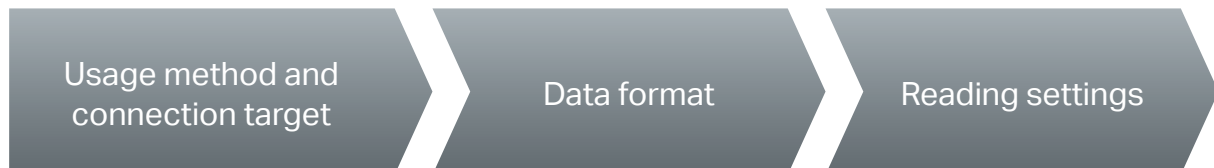
Step 1
Go to <http://keyenceautoid> in your browser.

Step 2
Configure the usage method, connection target, and data format settings.

Step 3
Use "Tuning"* to configure easy reading settings.
* DPM model only.

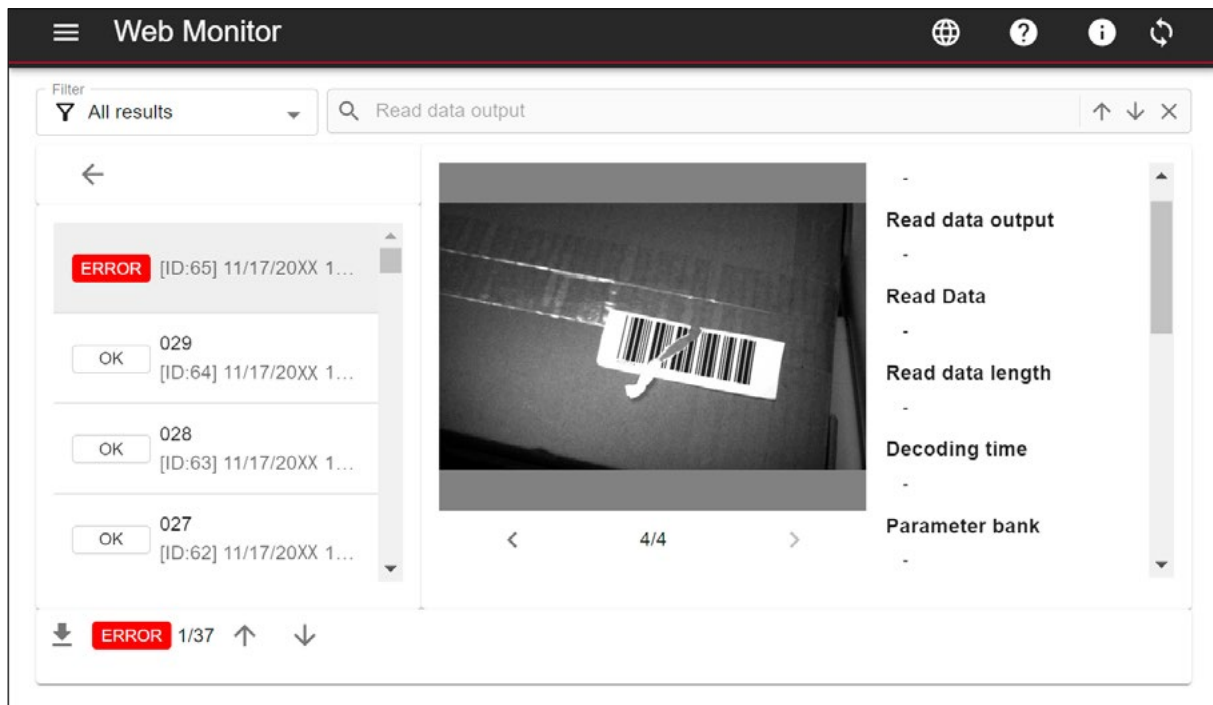
USB Type-C charging and setup are also possible on wireless models.

Configure all of the necessary settings in three simple steps!



HR Web Monitor improves operations

The HR Web Monitor tool makes it easy to check reading history and error images from a web browser.



Website-based setup

Easy setup from a smartphone or PC

KEYENCE offers a dedicated setup page on its website for easy configuration simply by entering the setting details and reading the created QR code.

Simply enter the setting details on the KEYENCE webpage



Industrial protocol compatibility

The HR-X Series is compatible with various industrial protocols such as EtherNet/IP®, PROFINET, EtherCAT®, and PLC Link for improved compatibility with PLCs.

General-purpose TCP/IP and high-security https and SFTP communication are also supported.



* EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

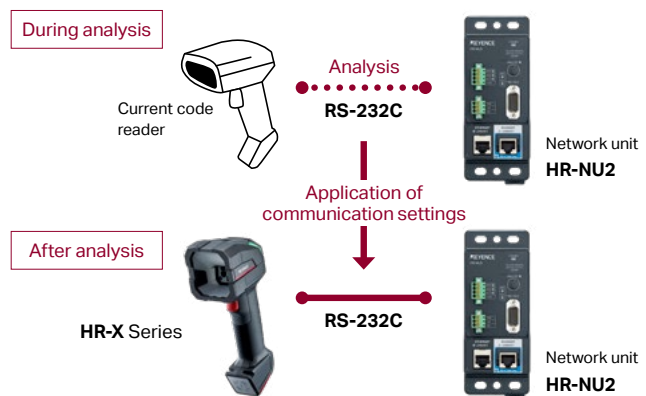
Customizable data output

Data output details can be customized as needed, including controlling the output of specific code types and the number of digits.



HR-X Analyzer for automatic analysis of communication settings WORLD'S FIRST

Connecting a currently used code reader to the dedicated communication unit (HR-NU2) makes it possible to analyze the baud rate and other communication settings — the first feature of its kind in the world. This allows for immediate replacement of an HR-X Series device even if the current setting configuration is not known.



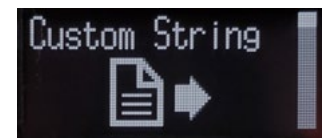
OLED (organic LED) display

Review device status even without a PC.

* DPM and High Performance models only.



Read data display



Character string transmission

Reliable continuous usage time (17 hours*)

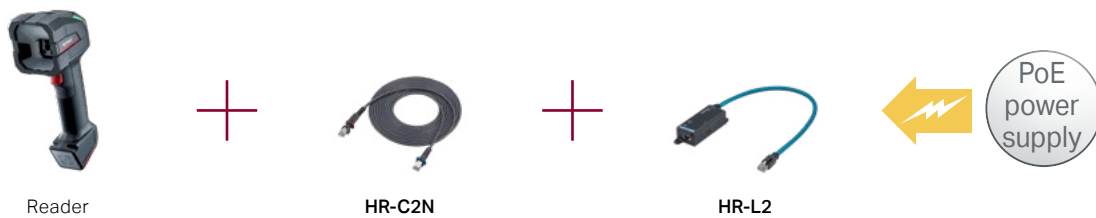
A full charge provides reliable usability for an extended period.

* Standard model.



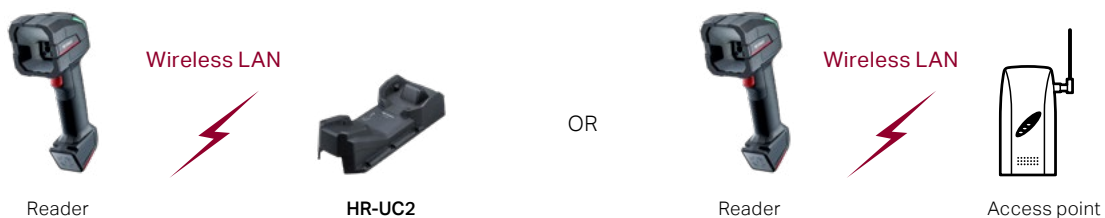
PoE compatibility for simplified wiring

Power can be supplied via PoE when using the HR-L2 LAN conversion adapter. Supplying power through the Ethernet cable simplifies wiring and reduces both costs and setup time.



Wireless LAN (5 GHz) connectivity

Achieve stable wireless network communication with the built-in 5 GHz capability, even in environments where Bluetooth and 2.4 GHz connections are unstable.



ESD model available

The HR-X100ESD prevents damage to delicate components from static electricity during manufacturing.



HR-X Recovery for easy duplication of settings

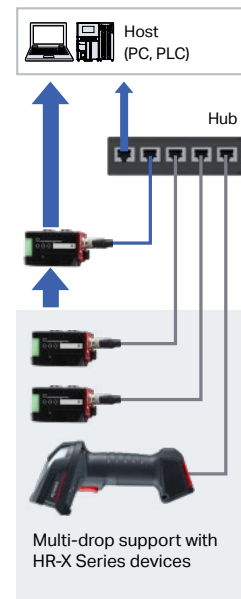
Easily copy settings from a current HR-X Series device to another device using the OLED display. This makes replacing and configuring multiple devices incredibly easy.

* DPM and High Performance models only.



Multi-drop function

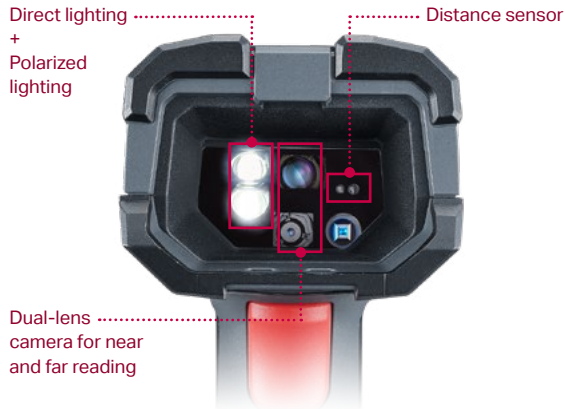
Adding an HR-X Series to a system that includes SR Series fixed code readers is possible with multi-drop. By consolidating data from HR-X Series devices, the SR Series eliminates the need for additional interfaces or communication programming at the host.



Hands-Free/Presentation Style Reading

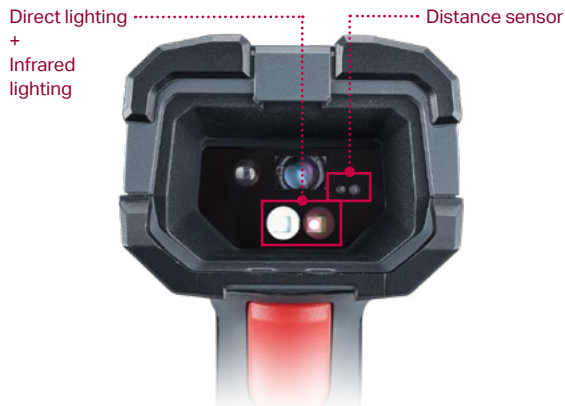
Large depth-of-field and in-motion reading High Performance model

- High-speed reading performance
- Reading throughout a range of 10 to 600 mm **0.39" to 23.62"***
- Automatic trigger using the time-of-flight (TOF) sensor



Close-up and stationary reading Standard model

- Reading throughout a range of 10 to 400 mm **0.39" to 15.75"***
- Built-in infrared lighting for reduced operator fatigue due to glare
- Automatic trigger using the time-of-flight (TOF) sensor



Convenient optional accessories for secure hands-free reading (all models)

- Multi-function attachment (HR-FH2/FH25)



Secured with a camera screw

- Hands-free stand (HR-ST2)



HR-FH2 installation example



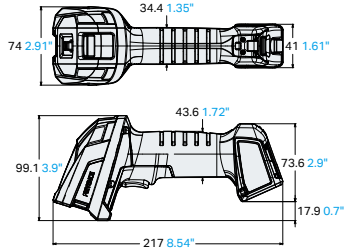
HR-HL2 installation example

* With a 1D code/NB width of 0.25 mm **0.01"**

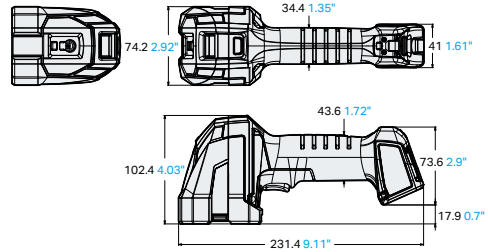
Standard model
HR-X100/X100WB/X100ESD



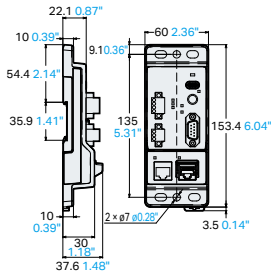
High Performance model
HR-X300/X300WB



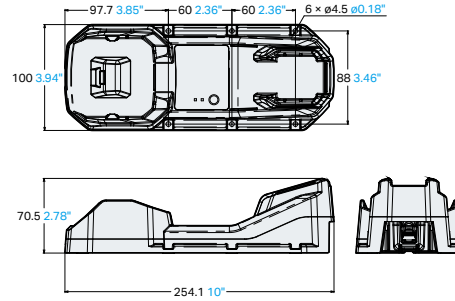
DPM model
HR-X500/X500WB



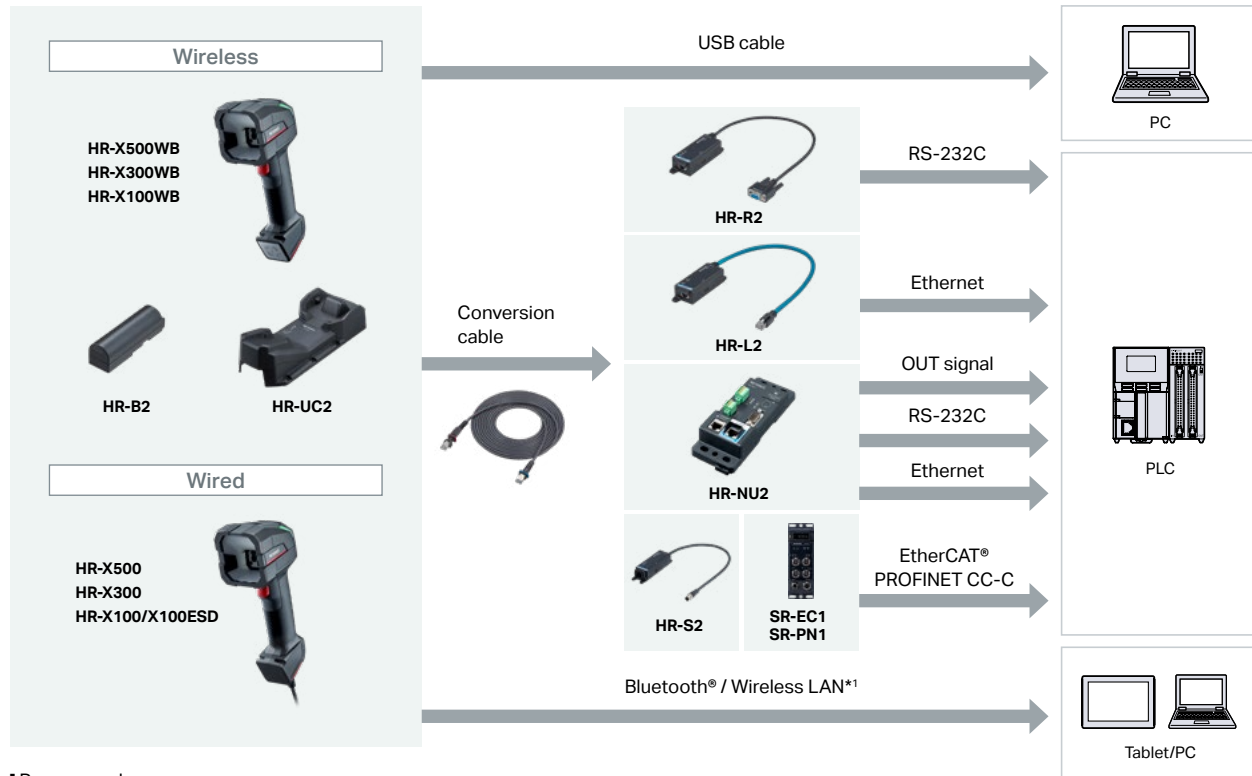
Network unit
HR-NU2



Charging cradle
HR-UC2



System configuration









Power supply
 USB: **HR-X300/X100/X100ESD**
 AC adapter: **HR-X500/UC2**
 D-sub 9th pin connector: **HR-X300/X100/X100ESD**
 Ethernet (PoE): **HR-X500/X300/X100/UC2**

*1 Wireless models only.
 Direct communication possible without HR-UC2.

Step 1 Select a code reader.

	Wireless models			Wired models		
	DPM	High Performance	Standard	DPM	High Performance	Standard
Main unit	HR-X500WB	HR-X300WB	HR-X100WB	HR-X500	HR-X300	HR-X100 HR-X100ESD
Battery	HR-B2					
Cradle	HR-UC2					

Step 2 Select an interface and cable length.

	USB		Ethernet	RS-232C	EtherCAT®	PROFINET CC-A/CC-B/CC-C			
	High Performance / Standard (wired)	DPM (wired) / All models (wireless)	All models (wired/wireless)						
Cable 2 m 6.6'	HR-C2U	HR-XC2U	HR-C2N						
Cable 5 m 16.4'	 HR-C5U	 HR-XC5U	 HR-C5N*4						
Cable 3 m 9.8' (curled)	 HR-C3UC	 HR-XC3UC	 HR-C3NC*4						
Conversion adapter / Network unit	Only when using 24 VDC power, OUT signals: HR-NU2*2		HR-L2*4 (PoE-compatible)*3	OR	HR-NU2*2	OR	HR-R2 (5 VDC power available from pin No. 9)*1	HR-S2 + SR-EC1	HR-S2 + SR-PN1
AC adapter	OP-88731								

*4 HR-C5N and HR-C3NC cannot be used with HR-L2

Step 3 Select optional accessories.

Optional accessories

						
4-slot charging cradle HR-CG4*	Multi-function attachment (HR-X300/X100) HR-FH2	Multi-function attachment (HR-X500) HR-FH25	Stand HR-ST2	Holder (HR-X300/X100) HR-HL2	Holder (HR-X500) HR-HL25	USB cable Type-C OP-88569

* The HR-CG4 requires a separate AC adapter (OP-88731) and AC cable.

AC cables

OP-99022 (USA, Canada), **OP-99012** (Japan), **OP-99042** (China), **OP-99032** (Germany, France, Italy, Belgium), **OP-99072**(UK), **OP-99082** (Korea), **OP-99052** (Taiwan), **OP-99102** (Mexico), **OP-99122** (India)



Specifications

Code readers

Model		HR-X500WB	HR-X500	HR-X300WB	HR-X300	HR-X100WB	HR-X100	HR-X100ESD	
Type		DPM model		High Performance model		Standard model			
Wireless/wired		Wireless	Wired	Wireless	Wired	Wireless	Wired		
Receiver	Number of pixels	1920×1200 × 2 cameras 2.3 megapixels × 2 cameras		1920×1200 × 2 cameras 2.3 megapixels × 2 cameras		1920×1200 2.3 megapixels			
	Sensor	CMOS image sensor		CMOS image sensor		CMOS image sensor			
Light emitter	Light source	White LED		White LED		White LED/Infrared LED			
	LED risk group	Risk group 2 (IEC 62471)		Risk group 1 (IEC 62471)		Risk group 1 (IEC 62471)			
	Aimer light source	Laser (red), Wavelength: 650 nm; LED (green)		Laser (red), Wavelength: 650 nm		LED (green)			
	Laser class	Class 1 (IEC 60825-1)		Class 1 (IEC 60825-1)		Class 1 (IEC 60825-1)			
Distance sensor		Time-of-flight (TOF) sensor		Time-of-flight (TOF) sensor		Time-of-flight (TOF) sensor			
Reading specifications	Supported symbols	2D codes		QR, Micro QR, DataMatrix (ECC200), DMRE, GS1 DataMatrix, PDF417, Micro PDF417, GS1 Composite (CC-A, CC-B, CC-C), DotCode, Maxi Code, Aztec Code					
	Barcodes	CODE39, ITF, 2of5 (Industrial 2of5), COOP 2of5, NW-7 (Codabar), CODE128, GS1-128, GS1 DataBar, CODE93, JAN/EAN/UPC, Trioptic CODE39, CODE39 Full ASCII, Pharmacode, Postal (Japan Postal, IMB)							
	Minimum resolution	2D codes		0.040 mm 0.002"		0.127 mm 0.005"		0.127 mm 0.005"	
	Reading distance (reference value)	Barcodes	0.040 mm 0.002"		0.070 mm 0.003"		0.070 mm 0.003"		0.070 mm 0.003"
		DataMatrix (Module size: 0.25 mm 0.01")	10 to 150 mm 0.39" to 5.91"		40 to 500 mm 1.57" to 19.69"		40 to 250 mm 1.57" to 9.84"		
DataMatrix (Module size: 0.50 mm 0.02")		10 to 250 mm 0.39" to 9.84"		10 to 600 mm 0.39" to 23.62"		10 to 400 mm 0.39" to 15.75"			
CODE39 (NB: 0.25 mm 0.01")	10 to 300 mm 0.39" to 11.81"		10 to 600 mm 0.39" to 23.62"		10 to 400 mm 0.39" to 15.75"				
CODE39 (NB: 0.50 mm 0.02")	10 to 500 mm 0.39" to 19.69"		10 to 800 mm 0.39" to 31.50"		10 to 550 mm 0.39" to 21.65"				
Status display output/buttons		OLED + Buzzer + Vibration + Function button		OLED + Buzzer + Vibration + Function button		Buzzer + Vibration			
Communication	USB	Standard	USB 2.0 Full Speed						
		Interface	USB-COM, USB keyboard, RNDIS						
		Supported OS	Windows 11 Pro, Windows 10 Pro 32/64bit						
	Bluetooth®	Standard	Bluetooth® 5.0 BR/EDR Class 1		Bluetooth® 5.0 BR/EDR Class 1		Bluetooth® 5.0 BR/EDR Class 1		—
		Profile	SPP/HID		SPP/HID		SPP/HID		—
Supported OS	Windows 11 Pro, Windows 10 Pro 32/64bit								
Wireless LAN	IEEE802.11a/n 5.2 GHz, 5.3 GHz		—		IEEE802.11a/n 5.2 GHz, 5.3 GHz		—		
Rating	Power supply voltage	USB power supply	4.75 to 5.25 VDC		4.75 to 5.25 VDC		4.75 to 5.25 VDC		
	AC adapter	—		12V ±10%		—		—	
	Current consumption	Max.	500 mA (USB powered)		1500 mA		500 mA (USB powered)		
During standby	180 mA		110 mA		160 mA		220 mA		
Environmental resistance	Enclosure rating	IP65/IP67 (IEC 60529)		IP65/IP67 (IEC 60529)		IP65/IP67 (IEC 60529)		IP65/IP67 (IEC 60529)	
	Operating ambient temperature	0 to +45°C 32 to 113°F		-20 to +45°C -4 to 113°F		-20 to +45°C -4 to 113°F		-20 to +45°C -4 to 113°F	
	Storage ambient temperature	-20 to +60°C -4 to 140°F		-20 to +60°C -4 to 140°F		-20 to +60°C -4 to 140°F		-20 to +60°C -4 to 140°F	
	Charging temperature	0 to +40°C 32 to 104°F		0 to +40°C 32 to 104°F		0 to +40°C 32 to 104°F		0 to +40°C 32 to 104°F	
	Operating ambient humidity	Max. 95% RH (no condensation)						—	
	Storage relative humidity	Max. 95% RH (no condensation)						—	
	Oil resistance	IP67/GISO 16750-1						—	
	Chemical resistance	Supports sterilization with alcohol						—	
	Static electricity resistance	Airborne: ±25 kV; Contact: ±10 kV; Indirect: ±10 kV ¹						—	
	Electrostatic charge prevention	—						IEC61340-5-1	
Drop resistance	Concrete, 2.5 m 8.2' *2						Concrete, 1.5 m 4.9' *2		
Repeated drops	30 cm 11.81", 20,000 times*2						—		
Continuous usage time (reference value)	Approx. 14 hours*3		—		Approx. 15 hours*3		Approx. 17 hours*3		
Charging time	Approx. 10 hours		—		Approx. 10 hours		Approx. 10 hours		
Charging method	Wireless charging USB charging (Type-C)		—		Wireless charging USB charging (Type-C)		Wireless charging USB charging (Type-C)		
Materials	PC + TPU		PC + TPU		PC + TPU		PC/ABS		
Dimensions	231.4 × 102.4 × 74.2 mm 9.11" × 4.03" × 2.92"		217 × 99.1 × 74 mm 8.54" × 3.90" × 2.91"		217 × 99.1 × 74 mm 8.54" × 3.90" × 2.91"		217 × 99.1 × 74 mm 8.54" × 3.90" × 2.91"		
Weight	Approx. 410 g 14.47 oz (main unit only) Approx. 470 g 16.59 oz (including battery)		Approx. 440 g 15.53 oz (excluding cables)		Approx. 340 g 12.00 oz (main unit only) Approx. 400 g 14.12 oz (including battery)		Approx. 370 g 13.06 oz (excluding cables) Approx. 390 g 13.77 oz (including battery)		

*1 Verify that no damage is caused. *2 These are test values and are not guaranteed. *3 One reading every 20 seconds.

Cradle

Model		HR-UC2
Rating	Power supply voltage	AC adapter: 12 VDC ±10%
	Current consumption	Max. 1500 mA
	During standby	120 mA
Environmental resistance	Enclosure rating	IP65/IP67
	Operating ambient temperature	0 to +40°C 32 to 104°F
	Storage ambient temperature	-20 to +60°C -4 to 140°F
	Operating ambient humidity	Max. 95% RH (no condensation)
	Storage relative humidity	Max. 95% RH (no condensation)
Charging temperature	0 to +40°C 32 to 104°F	
Materials	PC	
Weight	Approx. 330 g 11.65 oz	

4-slot charging cradle

Model		HR-CG4
Charging part	Charging time	Approx. 6.5 hours
Charging confirmation LED		2-color LED (red: charging, green: charging complete)
Environmental resistance	Operating ambient temperature	0 to +40°C 32 to 104°F
	Storage ambient temperature	-20 to +60°C -4 to 140°F
	Operating ambient humidity	20 to 85% RH (no condensation)
Storage relative humidity	20 to 85% RH (no condensation)	
Materials	PC	
Weight	Approx. 390 g 13.77 oz (excluding AC adapter)	

AC adapter

Model		OP-88731
Rated input	100 to 240 VAC, 50/60 Hz	
Rated output	12 VDC, Max. 1.5 A	
Environmental resistance	Operating ambient temperature	-20 to +50°C -4 to 122°F
	Storage ambient temperature	-20 to +70°C -4 to 158°F
Weight	Approx. 120 g 4.24 oz	

Rechargeable battery pack

Model		HR-B2
Type	Lithium-ion rechargeable battery	
Nominal capacity	3350 mAh	
Dimensions	20.5 × 22.4 × 70.7 mm 0.81" × 0.88" × 2.78"	
Weight	Approx. 55 g 1.94 oz	

Conversion adapter

Model		HR-L2	HR-R2	HR-S2
Type	LAN conversion adapter	RS-232C conversion adapter	SR-EC1/PN1 conversion adapter	
Cable length	0.4 m 1.3'		0.4 m 1.3'	
Interface	Ethernet	RS-232C	For SR-EC1/PN1	
Supported protocols	TCPIP, SNMP, FTP, SFTP, HTTP, HTTPS, EtherNet/IP®, PROFINET CC-A, KV STUDIO, MC protocol, Omron PLC link	No-protocol, KV STUDIO, MC protocol, SYSWAY	EtherCAT® (SR-EC1) PROFINET CC-C (SR-PN1)	
Materials	PC		PC	

Network unit

Model		HR-NU2
Communication specifications	RS-232C	Supported protocols
Control output	Ethernet	No-protocol, KV STUDIO, MC protocol, SYSWAY
	Number of outputs	3
Rating	Power supply voltage	24 VDC power supply: 24 VDC +25%/−20%
Materials	PC	
Weight	Approx. 140 g 4.94 oz	

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