

# Code Reader Group Catalog

1D / 2D  
Code Verification



1D / 2D  
Code Reader

# Total solution from recognition to print quality verification

## 1D / 2D Symbols and Direct Part Marks

Linear (1D) barcodes have been in commercial use since the 1970s and are the most common symbologies used for automatic identification. Increasing numbers of manufacturers are using two-dimensional (2D) symbols, such as Data Matrix, that offer greater placement flexibility and increased data capacity.

Machine-readable symbols generally fall into the categories of linear barcodes, stacked symbols, 2D symbols and Optical Character Recognition (OCR) fonts.

OMRON Microscan provides fast, reliable reading solutions for 1D and 2D Symbology Standards in the right and OCR. Our products read any linear barcodes or 2D symbols printed or marked by any means, and verify them to industry standards.

Note: OMRON's F430-F and F420-F Smart Cameras provide Optical Character Recognition (OCR). The code readers in this catalog do not provide OCR.

### LINEAR BARCODES



Code 128



Code 39



Pharmacode



Code 93



Interleaved 2 of 5



UPC



0 001234 567895

JAN/EAN

### STACKED SYMBOLOGIES



PDF417



GS1 DataBar (Stacked)



GS1 DataBar (Composite)



Micro PDF417

### 2D SYMBOLOGIES



Data Matrix



QR Code



Aztec Code



DotCode

Note: symbologies are not to scale.

### DIRECT PART MARKS

Direct part marks (DPM) are typically 2D Data Matrix symbols permanently marked by such methods as dot peen or laser / chemical etch onto substrates including metal, plastic, rubber or glass. OMRON Microscan offers a comprehensive family of readers and verifiers with illumination and decode algorithms specifically designed for difficult direct part marks.



Thermal print on foil



Dot peen on metal



Laser etch on metal



Inkjet on ABS plastic

### 1D and 2D Symbology Standards

- **ISO / IEC 15416**  
1D Print Quality Standard
- **ISO / IEC 15415**  
2D Print Quality Standard
- **Automotive Industry Action Group: AIAG B-4**  
Parts Identification and Tracking
- **U.S. Department of Defense: IUID MIL-STD-130**  
Permanent and Unique Item Identification
- **Electronics Industry Association: EIA 706**  
Component Marking
- **Clinical / Laboratory Standards Institute: AUTO2-A2**  
Bar Codes for Specimen Container Identification
- **ISO / IEC 16022**  
International Symbology Specification
- **ISO / IEC 15434**  
Symbol Data Format Syntax
- **Society of Aerospace Engineers: AS9132**  
Data Matrix Quality Requirements For Part Marking
- **AIM DPM / ISO 29158**  
Direct Part Mark Quality Guideline

**NOTE:** Symbologies on this page are not shown to scale and are not intended for testing purposes.

# Barcode Verification and Label Inspection

Legible, accurate barcodes and text have never been more important than they are today. Inconsistencies in print quality can lead to process inefficiencies and downtime; unreadable barcodes may require re-labeling, re-scanning, or even manual entry of critical information by a human operator.

Inconsistent quality may also result in expensive vendor non-compliance fines and other penalties, plus damage the labeled product's perceived quality.

Readability of barcodes is determined by how well a barcode reader can decode the data stored in the symbol.

Understanding the primary reasons for decoding failures can save operators valuable time and effort when diagnosing reading issues. Once the cause of barcode unreadability is defined, it can be addressed by taking simple, preventative measures.

OMRON Microscan's barcode verifiers are embedded solutions that include camera, software, and precision illumination specifically designed for the verification of 1D / 2D codes and direct part marks to ISO / IEC standards.

## Benefits of Barcode Verification Systems

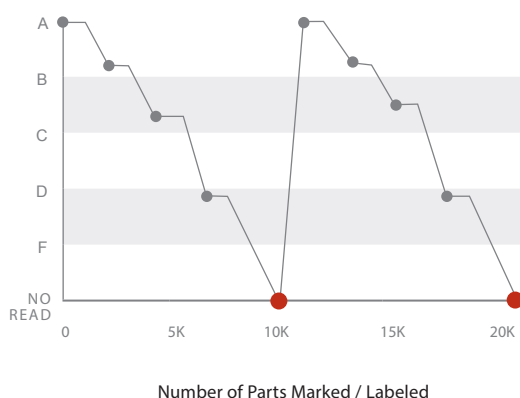
- Comply with symbol quality industry standards and directives
- Maximize efficiency of your manufacturing process
- Control quality in real time as you verify the output from your printer or code marking equipment
- Minimize returned goods due to bad labels
- Increase customer satisfaction
- Produce informative verification reports

## THE IMPORTANCE OF VERIFICATION

Automated data capture is critical to a company's success, and the results of scanning failure can have a serious impact. Without verification, bad barcodes are not identified until they are unreadable. By the time a bad barcode is identified, thousands of poor-quality barcodes may have already escaped down the line. With verification, bad barcodes are prevented from being applied to the product, eliminating the chance for future failures.

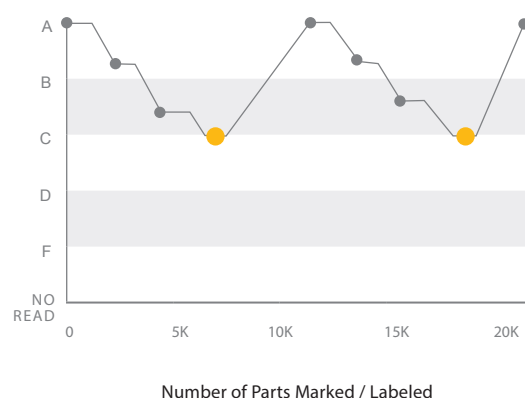
### WITHOUT VERIFICATION

Barcode Quality Over Time:  
Using a Reader to Check Quality



### WITH VERIFICATION

Barcode Quality Over Time:  
Using a Verification Solution to Check Quality



# A wide range of products to suit your application



## 1D / 2D Code Recognition



### Multi Code Readers

OMRON Microscan's multi code readers combine compact, easy-to-embed design with the ability to read 2D codes and linear barcodes. They also provide reliable reading of direct part marks (DPM) that are being increasingly used to meet growing demands for traceability.



**MicroHAWK V430-F series**

Multi code reader with autofocus can reliably read codes at different distances.



**MicroHAWK V420-F series**

The same reading ability as the V430-F Series but different communication interfaces.



**MicroHAWK V330-F series**

Compact multi code reader offers flexibility in installation.



**MicroHAWK V320-F series**

The same reading ability as the V330-F Series but different communication interfaces.



**C-Mount Code Reader V440-F**

Wide configuration of WD & FOV.

Autofocus	Yes	Yes	No	No	No
IP Rating	IP65	IP54	IP40	IP40	IP40
Connectivity	RS-232C Ethernet TCP / IP EtherNet / IP™ PROFINET	RS-232C USB Ethernet Via USB	Ethernet TCP / IP EtherNet / IP™ PROFINET	RS-232C Ethernet Via USB	RS-232C Ethernet TCP / IP EtherNet / IP™ PROFINET
Light	Built-in, expanded, external strobe signal	Built-in, expanded, external strobe signal	Built-in	Built-in	No

**p.6**

**p.22**

**p.32**

**p.38**

**p.44**

### Handheld Code Readers

From simple data tracking for individual management to reading difficult direct part markings, Omron Microscan offers a lineup to meet a wide range of traebility needs.



**V450-H series**

Industrial handheld code reader with rugged IP65/67 enclosure and robust DPM decoding algorithms.



**V410-H series**

Highly advanced handheld code reader characterized by its broad reading range that can be used in many different applications.

IP Rating	IP65/67	IP52
Wired or Wireless	Wired or Wireless	Wired
Light	Warm White LEDs and Red LEDs	XD: Warm White LEDs SR: Red LEDs
X-Mode Decode <sup>2</sup> Algorithms	✓	XD: ✓ SR: -
Connectivity	USB, RS-232	USB, RS-232

**p.52**

**p.64**

\*1. Use isopropyl alcohol 70%.

\*2. X-mode is an algorithm suitable for reading DPM.

**Laser Barcode Readers**

From small products for embedded OEM applications to rugged readers for industrial manufacturing environments, OMRON Microscan offers a wide range of quality products to read linear barcodes and stacked symbols, with features such as high-speed decoding, wide field of view, symbol reconstruction and aggressive decode algorithms.



**MS-3 series**

Compact raster laser barcode reader offers high-performance decoding and wide scan angle at close range.



**QX-830 series**

Compact laser barcode reader features QX platform, symbol reconstruction and Ethernet protocols.



**QX-870 series**

Programmable sweeping raster laser barcode reader with QX platform, symbol reconstruction and Ethernet protocols.

Read Range	51 to 254mm	25 to 762mm	25 to 762mm
Scans / Second	Up to 1000	300 to 1400	300 to 1400
Power	5 VDC	10 to 28 VDC	10 to 28 VDC
Sensor	Laser diode	Laser diode	Laser diode
IP Rating	IP54	IP54	IP65
Connectivity	RS-232, RS-422 / 485 (up to 115.2k), Keyboard Wedge, USB	RS-232, RS-422 / 485 Ethernet TCP / IP or EtherNet / IP™	RS-232, RS-422 / 485 Ethernet TCP / IP or EtherNet / IP™

**p.72**

**p.78**

**p.84**



**Print Quality Verification**



**Barcode Verification Systems**

OMRON Microscan's LVS® Barcode Verifiers are fully-integrated off-line solutions designed for the verification of 1D and 2D symbols and direct part marks to application standards such as GS1, HIBC, USPS and ISO / IEC 15415 / 15416. Barcode Verification Kits offer flexible integration options for off-line to symbology standards or user-defined parameters.



**LVS-9510 series**

All-in-one desktop verifier for off-line ISO / IEC barcode verification.



**LVS-958 series**

All-in-one handheld verifier for flexible verification of multiple printed 1D / 2D symbols and direct part marks (DPM). Can be used with a tablet for portability.

1D / 2D	✓	✓
DPM		✓
GS1 Data	✓	✓
GS1 Certified Manage	✓	✓
Permissions	✓	✓
Field of View	Varies by model	Standard: Horizontal 76 mm, Vertical 57 mm DPM: 44 × 44 mm DPM-HD: 33 × 33 mm

**p.90**

**p.94, 98**



## Auto Focus Multi Code Reader

# MicroHAWK V430-F series

### Auto Focus Multi Code Reader

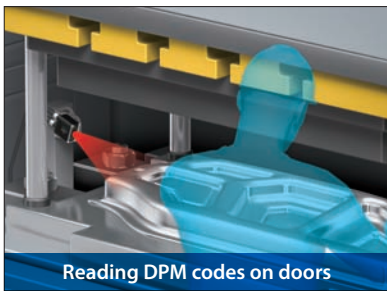


The new V430-F Series offers advanced decode algorithms and improved ruggedness. The long-range model for long-distance reading and improved light model ideal for DPM expand the range of auto focus multi code readers.

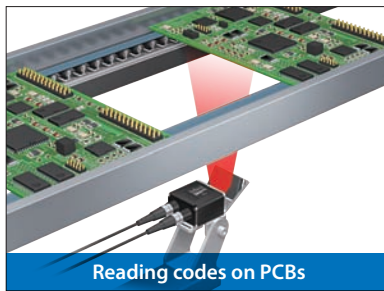
Refer to the V430-F series datasheet (Cat. No. Q274) for details.

### Easy to integrate

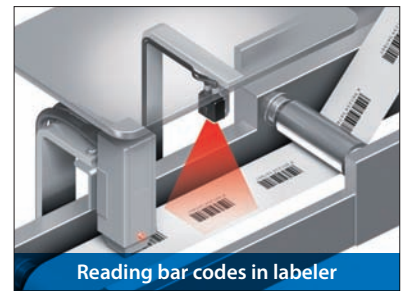
#### Application in automotive industry



#### Application in digital industry



#### Application in F&B/pharma industry

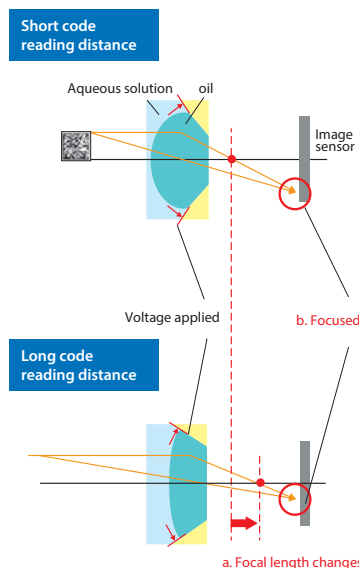


### Long life autofocus

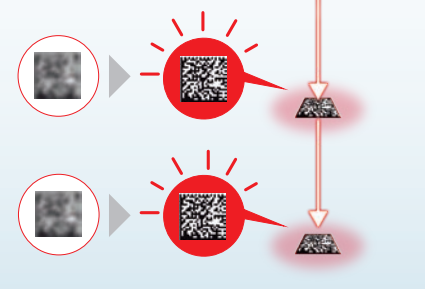
#### Liquid lens for unlimited autofocus

Code readers using a mechanical focus mechanism generally break due to deterioration of the drive mechanism or motor when they perform autofocus tens of thousands of times. The V430-F Series, on the other hand, uses a liquid lens that does not need a drive mechanism or motor, providing unlimited autofocus and long life.

The liquid lens can flexibly change its focal length by applying voltage to change the internal oil and water shape. (a in right figure) In addition, the V430-F Series precisely focuses on objects using the code search algorithm. (b in right figure)



No worry about breakdown even when distance to code varies due to frequent changeover



## Auto Focus Multi Code Reader MicroHAWK V430-F series

### Easy troubleshooting

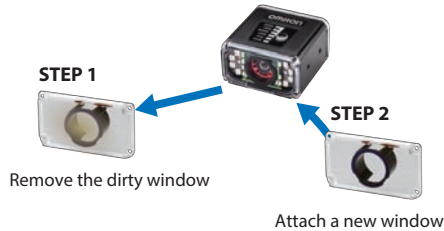
#### Quick troubleshooting from web browser

The V430-F Series has pre-installed software for setup. There is no software to install or update. You can easily troubleshoot using a PC or tablet with the browser-based interface.



\*1. The tablet must be connected to a wireless LAN.

#### Easy replacement of dirty window



#### Print Quality Grading function to avoid problems

This function enables an in-line check of the relative quality change and the parameter where the change occurred.

##### Applicable standards

ISO/IEC 15415  
 ISO/IEC 15416  
 ISO/IEC TR29158  
 (AIM DPM -1-2006) \*2  
 ISO/IEC 16022

\*2. Data Matrix only.

New models with improved functionality joined the V430-F Series. Check the table below and use the new model.

	Old model	New model
Code Reader	V430-F000W50C	V430-F000W50C-SWX
	V430-F000M50C	V430-F000M50C-SWX
	V430-F000W12M	V430-F000W12M-SRX
	V430-F000M12M	V430-F000M12M-SRX
	V430-F000N12M	V430-F000N12M-SRX
	V430-F050M03M	V430-F050M03M-SRX
	V430-F081M03M	V430-F081M03M-SRX
	V430-F102M03M	V430-F102M03M-SRX
Cable	V430-W2-3M	V430-WQR-3M *

\* The new model has the same functions as the old model. The model number was changed due to the expansion of the lineup.

## Auto Focus Multi Code Reader MicroHAWK V430-F series

## Ordering Information

## Code Readers

## Categories:

## 1. Fixed Focus Camera

- a.) V430-F Monochrome Fixed Focus Camera
- b.) V430-F Color Fixed Focus Camera
- c.) V430-F 1.2 MP Monochrome Fixed Focus Camera with Narrow Lens

## 2. Autofocus Camera

- a.) V430-F 0.3 MP Monochrome Autofocus Camera (50 - 300 mm)
- b.) V430-F 1.2 MP Monochrome Autofocus Camera (50 - 300 mm for Wide and Medium Lens, 40 - 150 mm for Narrow Lens)
- c.) V430-F Color Autofocus Camera (50 - 300 mm)
- d.) V430-F 1.2 MP Monochrome Autofocus Camera with Ring Light (50 - 300 mm for Medium Lens, 40 - 150 mm for Narrow Lens)
- e.) V430-F 1.2 MP Monochrome Long Range Autofocus Camera (75 - 1160 mm)

## 1a) V430-F Monochrome Fixed Focus Camera: Valid Combinations

## V430-F[XXX][Y][ZZZ]-[L][C][P]

Key	Classification	Code	Meaning
XXX	Focus Distance (mm)	050	Fixed Focus at 50 mm
		064	Fixed Focus at 64 mm
		081	Fixed Focus at 81 mm
		102	Fixed Focus at 102 mm
		133	Fixed Focus at 133 mm
		190	Fixed Focus at 190 mm
		300	Fixed Focus at 300 mm
Y	Lens	W	Wide Field of View - 5.2 mm Focal Length Lens
		M	Medium Field of View - 7.7 mm Focal Length Lens
ZZZ	Sensor	03M	752 x 480 (0.3 MP) Pixel, Mono Sensor, Global Shutter
		12M	1280 x 960 (1.2 MP) Pixel, Mono Sensor, Global Shutter
L	Light Type	N	No Outer Light
		S	Standard Outer Light
C	Light Color	N	No Outer Light
		R	Red
		W	White
P	Software License	P	High Speed, Plus Mode
		X	High Speed, X-Mode

## 1b) V430-F 5.0 MP Color Fixed Focus Camera: Valid Combinations

Note: 5 MP Color cameras are available with No Outer Light or White Light options only.

## V430-F[XXX][Y]50C-[L][C][P]

Key	Classification	Code	Meaning
XXX	Focus Distance (mm)	050	Fixed Focus at 50 mm
		064	Fixed Focus at 64 mm
		081	Fixed Focus at 81 mm
		102	Fixed Focus at 102 mm
		133	Fixed Focus at 133 mm
		190	Fixed Focus at 190 mm
		300	Fixed Focus at 300 mm
Y	Lens	W	Wide Field of View - 5.2 mm Focal Length Lens
		M	Medium Field of View - 7.7 mm Focal Length Lens
L	Light Type	N	No Outer Light
		S	Standard Outer Light
C	Light Color	N	No Outer Light
		W	White
P	Software License	P	High Speed, Plus Mode
		X	High Speed, X-Mode



Auto Focus Multi Code Reader MicroHAWK V430-F series

**1c) V430-F 1.2 MP Monochrome Fixed Focus Camera with Narrow Lens: Valid Combinations**

Note: Fixed Focus Narrow lens option available for 1.2 MP Mono camera only.

**V430-F[XXX]N12M-[L][C][P]**

Key	Classification	Code	Meaning
XXX	Focus Distance (mm)	400	Fixed Focus at 400 mm
L	Light Type	N	No Outer Light
		S	Standard Outer Light
C	Light Color	N	No Outer Light
		R	Red
		W	White
P	Software License	P	High Speed, Plus Mode
		X	High Speed, X-Mode

**2a) V430-F 0.3 MP Monochrome Autofocus Camera (50 - 300 mm): Valid Combinations**

**V430-F000[Y]03M-[L][C][P]**

Key	Classification	Code	Meaning
Y	Lens	W	Wide Field of View - 5.2 mm Focal Length Lens
		M	Medium Field of View - 7.7 mm Focal Length Lens
L	Light Type	N	No Outer Light
		S	Standard Outer Light
C	Light Color	N	No Outer Light
		R	Red
		W	White
P	Software License	P	High Speed, Plus Mode
		X	High Speed, X-Mode

**2b) V430-F 1.2 MP Monochrome Autofocus Camera (50 - 300 mm for Wide and Medium, 40 - 150 mm for Narrow): Valid Combinations**

**V430-F000[Y]12M-[L][C][P]**

Key	Classification	Code	Meaning
Y	Lens	W	Wide Field of View - 5.2 mm Focal Length Lens
		M	Medium Field of View - 7.7 mm Focal Length Lens
		N	Narrow Field of View - 16 mm Focal Length Lens
L	Light Type	N	No Outer Light
		S	Standard Outer Light
C	Light Color	N	No Outer Light
		R	Red
		W	White
P	Software License	P	High Speed, Plus Mode
		X	High Speed, X-Mode

**2c) V430-F 5.0 MP Color Autofocus Camera (50 - 300 mm): Valid Combinations**

Note: Narrow Autofocus lens option not available for color camera.

**V430-F000[Y]50C-[L][C][P]**

Key	Classification	Code	Meaning
Y	Lens	W	Wide Field of View - 5.2 mm Focal Length Lens
		M	Medium Field of View - 7.7 mm Focal Length Lens
L	Light Type	N	No Outer Light
		S	Standard Outer Light
C	Light Color	N	No Outer Light
		W	White
P	Software License	P	High Speed, Plus Mode
		X	High Speed, X-Mode

Multi Code Reader

Handheld Code Reader

Laser Barcode Reader

Code Verification System

Auto Focus Multi Code Reader MicroHAWK V430-F series

**2d) V430-F 1.2 MP Monochrome Autofocus Camera with Ring Light (50 - 300 mm for Medium, 40 – 150 mm for Narrow): Valid Combinations**

Note: Ring Light version is available for Autofocus, Medium, and Narrow lens, 1.2 MP Monochrome camera only.

**V430-F000[Y]12M-R[C]X**

Key	Classification	Code	Meaning
Y	Lens	M	Medium Field of View – 7.7 mm Focal Length Lens
		N	Narrow Field of View – 16 mm Focal Length Lens
C	Light Color	R	Red
		W	White

**2e) V430-F 1.2 MP Monochrome Long Range Autofocus Camera (75 - 1160 mm): Valid Combinations**

Note: Autofocus Long Range lens option available for 1.2 MP Monochrome camera only.

**V430-F000L12M-[L][C][P]**

Key	Classification	Code	Meaning
L	Light Type	N	No Outer Light
		S	Standard Outer Light
C	Light Color	N	No Outer Light
		R	Red
		W	White
P	Software License	P	High Speed, Plus Mode
		X	High Speed, X-Mode

Auto Focus Multi Code Reader MicroHAWK V430-F series

**Mounting Options**

Type	Model
L Bracket Adjustable Angle Mounting Kit	V430-AM0
1/4-20 Camera Mounting Block Kit	V430-AM1
4" (102 mm) Ram Mount Stand	V430-AM2
APG Pan and Tilt Camera Mount	V430-AM3
Nylon Screw and Washer Electrical Isolation Mounting Kit	V430-AM4
MS-4 / MINI to V/F4XX-F Adapter Plate	V430-AM5
Smart Ring Light to V/F4XX-F Mounting Bracket	V430-AM6
QX / Vision HAWK to V/F4XX-F Adapter Plate	V430-AM7

**Optics Options**

Type	Model
Front Window Installation Kit	V430-AF10*1
Diffuser Installation Kit	V430-AF11*1
Polarizer Installation Kit	V430-AF12*1
Right Angle Mirror Installation Kit	V430-AF3
YAG Filter Installation Kit	V430-AF4
ESD-Safe Window Installation Kit	V430-AF5
Red Filter Installation Kit	V430-AF6
Blue Filter Installation Kit	V430-AF7

\*1. The accessories V430-AF10, V430-AF11, and V430-AF12 are shown in relation to MicroHAWK V430-F□□□□□□□□-□□□□ code readers in this datasheet.

Previous-generation MicroHAWK V4X0-F□□□□□□□□ code readers are compatible with accessory part numbers V430-AF0, V430-AF1, and V430-AF2. Please select the correct accessory from the table based on your code reader part number format.

Accessory	Prior Code Reader V430-F□□□□□□□□-□□□□	New Code Reader V430-F□□□□□□□□
Front Window Installation Kit	V430-AF10	V430-AF0
Diffuser Installation Kit	V430-AF11	V430-AF1
Polarizer Installation Kit	V430-AF12	V430-AF2

**Lighting Options**

Type	Model
Red Light Installation Kit	V430-ALR
White Light Installation Kit	V430-ALW
Blue Light Installation Kit	V430-ALB
IR Light Installation Kit	V430-ALI

**Optics Options (V430-F Window Kits)**

Type	Model
Front Window Installation Kit	V430-AF0R
Diffuser Installation Kit	V430-AF1R
Polarizer Installation Kit	V430-AF2R

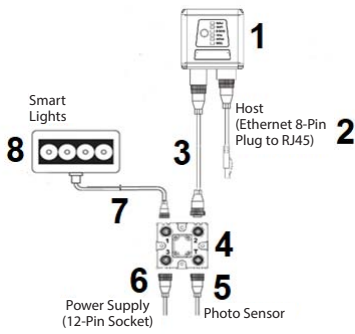
**Lighting Options (V430-F Ring Light Kits)**

Type	Model
Red Ring Light Installation Kit	V430-ALRR
White Ring Light Installation Kit	V430-ALWR
Blue Ring Light Installation Kit	V430-ALBR
IR Ring Light Installation Kit	V430-ALIR

Multi Code Reader  
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Auto Focus Multi Code Reader MicroHAWK V430-F series

Wiring Options



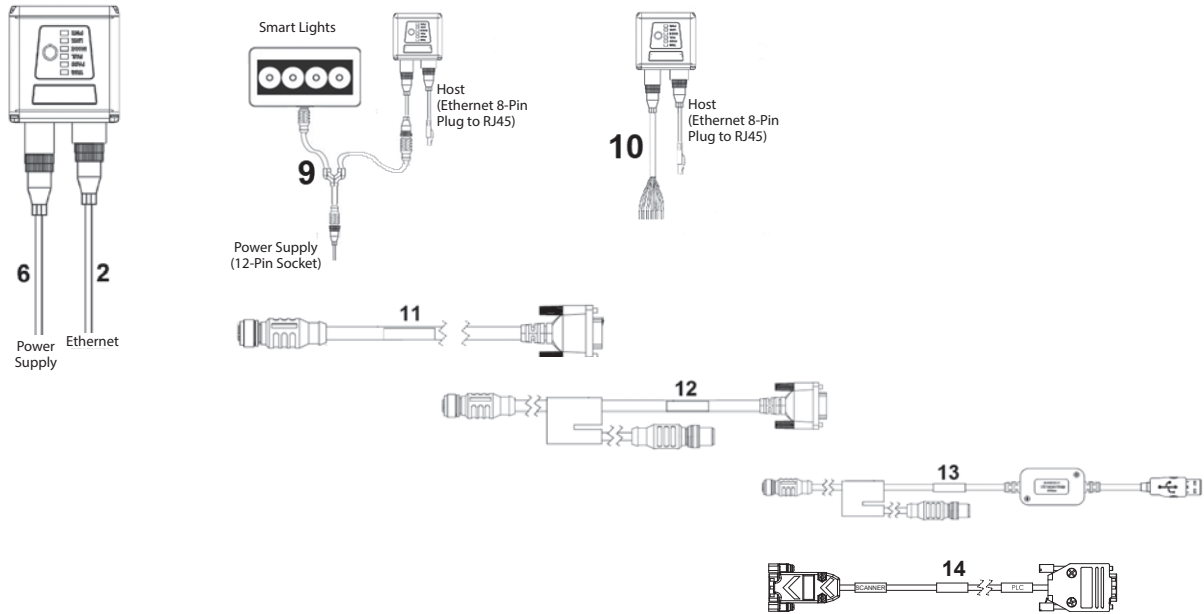
Drawing Reference	Category	Length / Spec	Model
2	Ethernet Communication Cables – Straight Connectors M12 Plug on Camera to RJ45 Connector	1 Meter	V430-WE-1M
		3 Meters	V430-WE-3M
		5 Meters	V430-WE-5M
	Ethernet Communication Cables – Right Angle M12 Connectors* M12 Plug on Camera to RJ45 Connector	3 Meters – Right Angle Up*	V430-WELU-3M
		3 Meters – Right Angle Down*	V430-WELD-3M
3	Camera to QX-1 Interconnect Cables M12 Socket to M12 Plug QX-1 is used as breakout module for common IO signals and power.	1 Meter	V430-WQ-1M
	M12 Socket to M12 Plug, with Power Filter	300 mm	V430-WQF-1M
	Camera to QX-1 Interconnect Cables M12 Socket to M12 Plug QX-1 is used as breakout module for common IO signals and power.	3 Meters	V430-WQ-3M
		5 Meters	V430-WQ-5M
4	QX-1 Interconnect Module – Power, Trigger, Smart Light Control Breakout	-	98-000103-02
5	QX-1 Photo Sensor, M12 4-Pin Plug, NPN	2 Meters – Light ON/ Dark ON	99-9000016-01
	QX-1 Field-Wireable M12 4-Pin Plug for Any Trigger Source or Photo Sensor	Screw Terminals	98-9000239-01
6	Power Supply, 100-240VAC, +24VDC, M12 12-Pin Socket	1 Meter US/Euro Plug	97-000012-01
7	QX-1 M12 to Smart Light Power and Strobe Control Cables M12 Plug on QX-1 to 5 Pin Socket on light	3 Meters – Continuous Power	61-000204-01
		3 Meters – Strobe Control	61-000218-01
8	Omron Microscan Smart Light Series	Integrated Power and Strobe Control Module	See Omron Microscan Smart Light Offering - Ring, DOAL, Large Area Lighting

\* Right angle cables.



Auto Focus Multi Code Reader MicroHAWK V430-F series

Alternate Wiring Options



Drawing Reference	Category	Length / Spec	Model
9	Y Cable, Camera/Power and Smart Light Power (Continuous On)	1 Meter	61-9000135-01
	Y Cable, Camera/Power and Smart Light Strobe Control	1 Meter	61-9000137-01
10	M12 to Flying Leads Cable, Straight Power, IO, RS-232, USB	3 Meters	V430-W8-3M
	M12 to Flying Leads Cable, with Power Filter		V430-W8F-3M
	M12 to Flying Leads Cable, Straight Power, IO, RS-232, USB	5 Meters	V430-W8-5M
	M12 to Flying Leads Cable, with Power Filter		V430-W8F-5M
	M12 to Flying Leads Cable Right Angle Power, IO, RS232, USB	3 Meters – Right Angle Up	V430-W8LU-3M
	M12 to Flying Leads Cable Right Angle, with Power Filter		V430-W8LUF-3M
	M12 to Flying Leads Cable Right Angle Power, IO, RS232, USB	3 Meters – Right Angle Down	V430-W8LD-3M
	M12 to Flying Leads Cable Right Angle, with Power Filter		V430-W8LDF-3M
11	M12 to RS-232 Breakout	1 Meter	V430-WR-1M
		3 Meters	V430-WR-3M
12	Camera to QX-1 Interconnect Cables with RS-232 Breakout	2.7 Meters	V430-WQR-3M
13	Camera to QX-1 Interconnect Cables with USB Keyboard Wedge Breakout	2.7 Meters	V430-WQK-3M
14	RS-232C cable connecting Omron's CS/CJ/NJ Controller	2 Meters	V430-WPLC-2M

Multi Code Reader

Handheld Code Reader

Laser Barcode Reader

Code Verification System

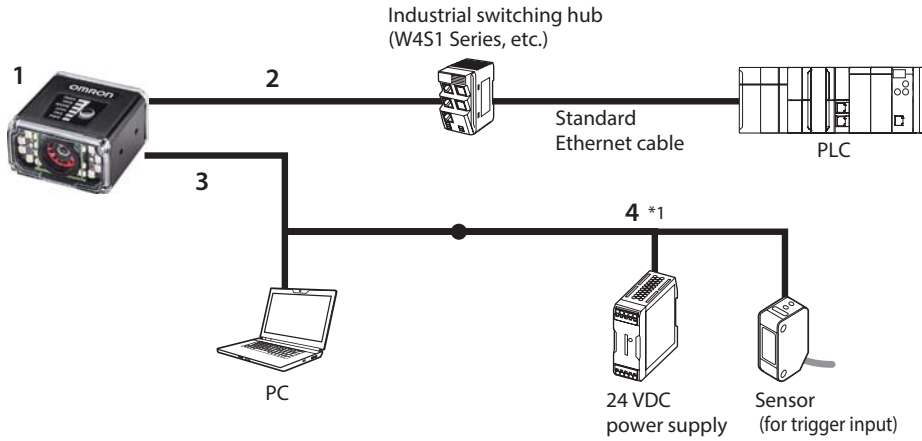


Auto Focus Multi Code Reader MicroHAWK V430-F series

System Configurations

Ethernet configuration 1

Input commands and output results via Ethernet.  
Triggers can be input using the I/O cable (Flying Leads Cable).

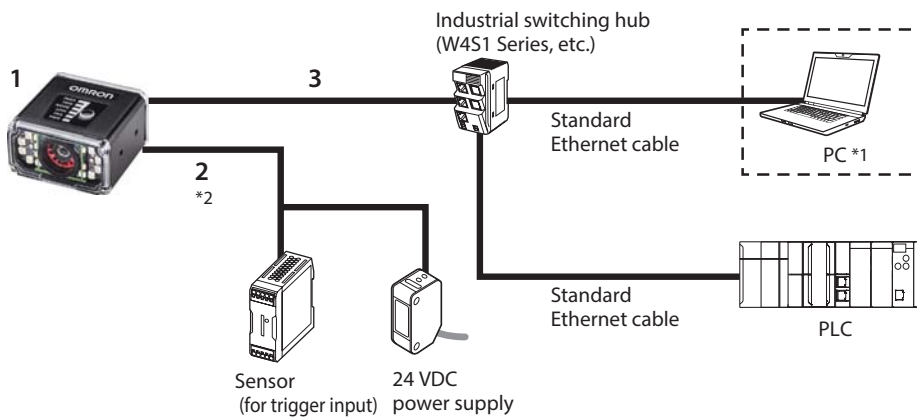


No.	Type	Model
1	Auto Focus Multi Code Reader	V430-F
2	Ethernet cable	V430-WE-1M/-3M/-5M V430-WELU-3M V430-WELD-3M
3	M12 to Flying Leads Cable	V430-WQK-3M
4	I/O cable (Flying Leads Cable)	V430-W8-3M/-5M V430-W8F-3M/-5M V430-W8LU-3M V430-W8LUF-3M V430-W8LD-3M V430-W8LDF-3M

\*1. The V430-WQ Cable (excluding V430-WQR and V430-WQK) can be used as an extension of the V430-W8 Cable.

Ethernet configuration 2

Input commands and output results via Ethernet.  
Triggers can be input using the I/O cable (Flying Leads Cable).



No.	Type	Model
1	Auto Focus Multi Code Reader	V430-F
2	I/O cable (Flying Leads Cable)	V430-W8-3M/-5M V430-W8F-3M/-5M V430-W8LU-3M V430-W8LUF-3M V430-W8LD-3M V430-W8LDF-3M
3	Ethernet cable	V430-WE-1M/-3M/-5M V430-WELU-3M V430-WELD-3M

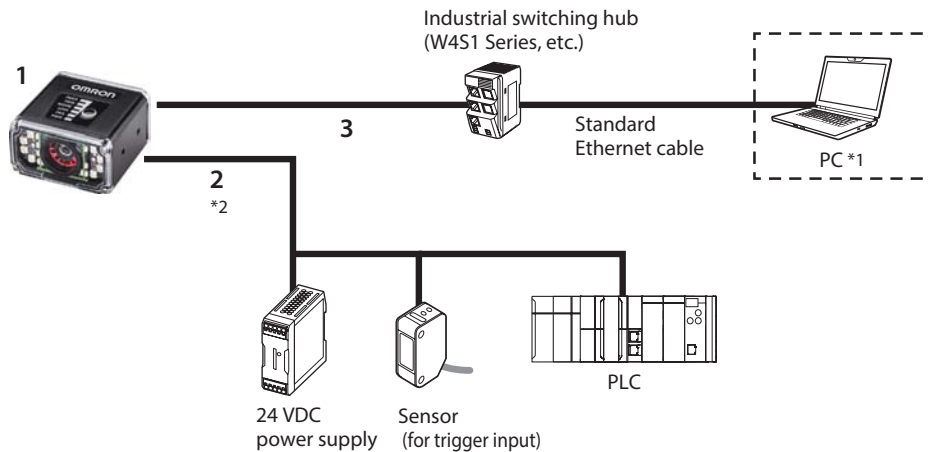
\*1. Connect a PC during operation when you need to display information on the monitor.  
\*2. The V430-WQ Cable (excluding V430-WQR and V430-WQK) can be used as an extension of the V430-W8 Cable.

Auto Focus Multi Code Reader MicroHAWK V430-F series

System Configurations

I/O interface

Input triggers and output judgment results via I/O.



No.	Type	Model
1	Auto Focus Multi Code Reader	V430-F
2	I/O cable (Flying Leads Cable)	V430-W8-3M/-5M V430-W8F-3M/-5M V430-W8LU-3M V430-W8LUF-3M V430-W8LD-3M V430-W8LDF-3M
3	Ethernet cable	V430-WE-1M/-3M/-5M V430-WELU-3M V430-WELD-3M

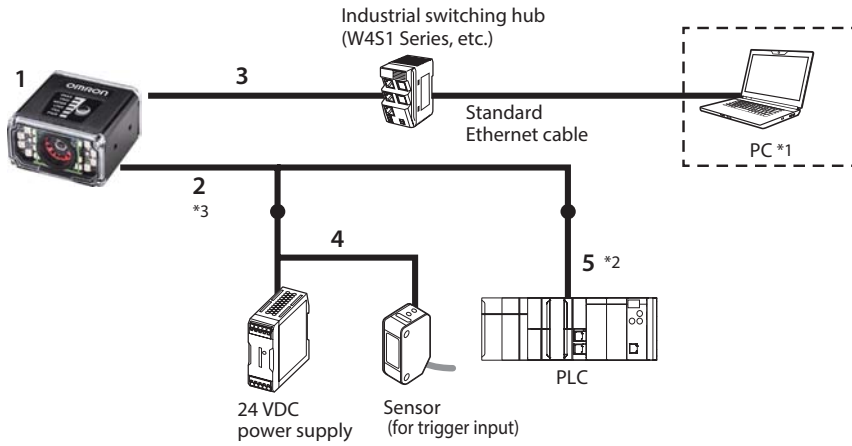
\*1. Connect a PC during operation when you need to display information on the monitor.  
 \*2. The V430-WQ Cable (excluding V430-WQR and V430-WQK) can be used as an extension of the V430-W8 Cable.

Auto Focus Multi Code Reader MicroHAWK V430-F series

System Configurations

RS-232C configuration 1

Input commands and output results via RS-232C.  
Triggers can be input using the V430-W8 Cable.

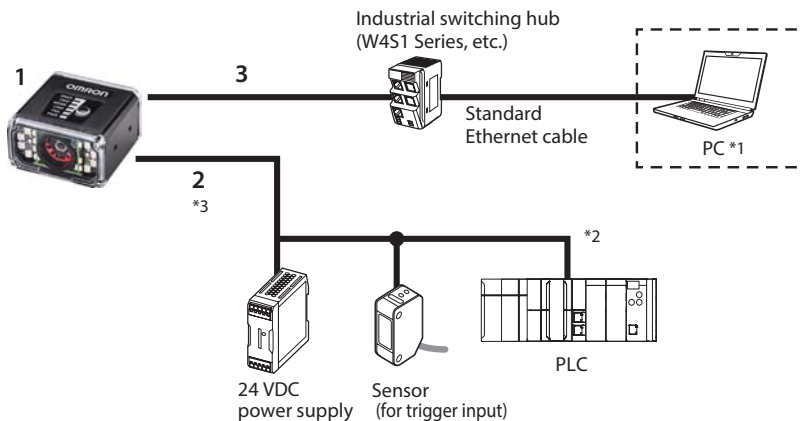


No.	Type	Model
1	Auto Focus Multi Code Reader	V430-F
2	Camera to QX-1 Interconnect Cables with RS-232 Breakout	V430-WQR-3M
3	Ethernet cable	V430-WE-1M/-3M/-5M V430-WELU-3M V430-WELD-3M
4	I/O cable (Flying Leads Cable)	V430-W8-3M/-5M V430-W8F-3M/-5M V430-W8LU-3M V430-W8LUF-3M V430-W8LD-3M V430-W8LDF-3M
5	RS-232C cable for connecting Omron's CS/CJ/NJ Controller	V430-WPLC-2M

\*1. Connect a PC during operation when you need to display information on the monitor.  
\*2. The RS-232C cable is required to connect Omron's CS/CJ/NJ Controller.  
No additional RS-232C cable is required to connect Omron's NX Machine Automation Controller.  
\*3. The V430-WQ Cable can be used as an extension of the V430-W8 Cable.

RS-232C configuration 2

Input commands and output results via RS-232C.  
Triggers can be input using the V430-W8 Cable.



No.	Type	Model
1	Auto Focus Multi Code Reader	V430-F
2	I/O cable (Flying Leads Cable)	V430-W8-3M/-5M V430-W8F-3M/-5M V430-W8LU-3M V430-W8LUF-3M V430-W8LD-3M V430-W8LDF-3M
3	Ethernet cable	V430-WE-1M/-3M/-5M V430-WELU-3M V430-WELD-3M

\*1. Connect a PC during operation when you need to display information on the monitor.  
\*2. Check the connector shape and signal lines (pin assignment) of the PLC before preparing the V430-W8 Cable.  
\*3. The V430-WQ Cable can be used as an extension of the V430-W8 Cable.

Auto Focus Multi Code Reader MicroHAWK V430-F series

Ratings and Specifications

V430-F		V430-F□□□□03M-□□□□	V430-F□□□□12M-□□□□	V430-F□□□□50C-□□□□
Symbologies *1	1D Symbologies	Code 39, Code 128, BC412, Interleaved 2 of 5, UPC/EAN, Codabar, Code 93, Pharmacode, PLANET, Postnet, Japanese Post, Australian Post, Royal Mail, Intelligent Mail, KIX		
	2D Symbologies	Data Matrix (ECC 0-200), QR Code, Micro QR Code, Aztec Code, DotCode		
	Stacked Symbologies	PDF417, MicroPDF417, GS1 Databar (Composite and Stacked)		
Reading Performance *2	Number of Reading Digits	No Upper Limit (depending on bar width and reading distance)		
	Aiming Light	Two Blue LEDs		
	Illumination	Inner LEDs: Four White and Four Red (Wavelength: 625 nm)		
		Outer LEDs:	8 Red or White	8 Red or White; 24 Red or White for V430-F□□□□12M-R□□□
	Reading Distance / Field of View	Refer to <i>Read Ranges</i> section for detail.		
	Pitch Angle (α) *3	±30°		
	Skew Angle (β) *3	±30°		
	Tilt Angle (γ) *3	±180°		
Image Capture	Focus	Liquid Lens Autofocus or Fixed Focus (Wide = 5.2 mm, Medium = 7.7 mm, Narrow = 16 mm, L = 16 mm)		
	Resolution	752 (H) x 480 (V)	1280 (H) x 960 (V)	2592 (H) x 1944 (V)
	Color / Monochrome	Monochrome CMOS	Monochrome CMOS	Color CMOS
	Shutter	Global Shutter	Global Shutter	Rolling Shutter
	Frames per Second	60 fps	42 fps	5 fps
	Exposure	50 to 100,000 μs		
Image Logging	FTP			
Trigger	External Trigger (Edge or Level), Communication Trigger (Ethernet, RS-232C)			
I/O Specifications	Input Signals	Trigger Input; New Master: Bi-Directional, Optoisolated, 4.5-28 V rated (10 mA @ 28 VDC)		
	Output Signals	3 Signals : Bi-Directional, Optoisolated, 1-28V rated, (ICE < 100 mA at 24VDC, current limited by user)		
Communication	Connectivity	RS-232C, Ethernet TCP/IP, EtherNet/IP, PROFINET		
	Ethernet Specifications	100BASE-TX / 10BASE-T		
Indicator LEDs	PASS (Green), TRIG (Amber), MODE (Amber), LINK (Amber), FAIL (Red), PWR (Green)			
Power Supply Voltage	24 VDC (Ambient voltage range, Standard Light : 5 to 30 VDC, Ring Light : 10 to 30 VDC) *5			
Current Consumption	0.18 A at 24 VDC (max.)			
Environmental Immunity*4	Ambient Temperature Range	Operating: 0 to 45° C Storage: -50 to 75°C (No Icing or Condensation)		
	Ambient Humidity Range	Operating and Storage: 5% to 95% (Non-Condensing)		
	Ambient Atmosphere	No Corrosive Gases		
	Vibration Resistance (Destructive)	Sine Vibration: 10 Hz to 55 Hz, 0.35 mm displacement, 20 cycles/axis. Random Vibration: 20 Hz to 2000 Hz, 6.295 Grms, 30 min/axis		
	Shock Resistance (Destructive)	50G, 11 ms, sawtooth profile. 3X in each X, Y, Z axis		
	Degree of Protection	IEC 60529 IP65 and IP67		
Weight	Main Body Only	Standard Light : Approx. 68 g, Ring Light : Approx. 100 g		
	Packaging Weight	Standard Light : Approx. 174 g, Ring Light : Approx. 200 g (including packing)		
Dimensions	Main Body Dimensions	Standard Light : 44.5 (W) x 44.5 (D) x 25.4 (H) mm Ring Light : 56.7 (W) x 53.5 (D) x 40.1 (H) mm		
	Packaging Dimensions	170 (W) x 117 (D) x 86 (H) mm		
Accessories	ReadMeFirst, CE Compliance Sheet			
LED Safety Standard	IEC 62471-1: 2006 Risk-Exempt Group			
Safety Standards	EN 55024:2010, EN 55032:2015 + AC:2016 FCC Part 15, Subpart B (Class B) UL60950-1 BIS, RCM, KC EAC, BSMI			
Materials	Case	Aluminum Diecast, Alumite (Black)		
	Reading Window	Acrylic		
Software	WebLink			

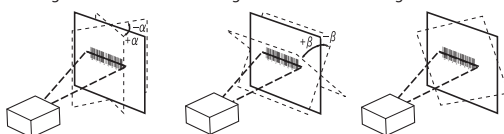
\*1. These symbologies are supported based on Omron's read capability validation standard. Omron recommends that validation be performed for each application.

\*2. Unless otherwise specified, reading performance is defined with center of field of view, angle R=∞.

\*3. Pitch angle

Skew angle

Tilt angle



\*4. In an electrically noisy environment, use only the V430-F in combination with a noise filter cable (V430-W□F-□M) to ensure proper operation.

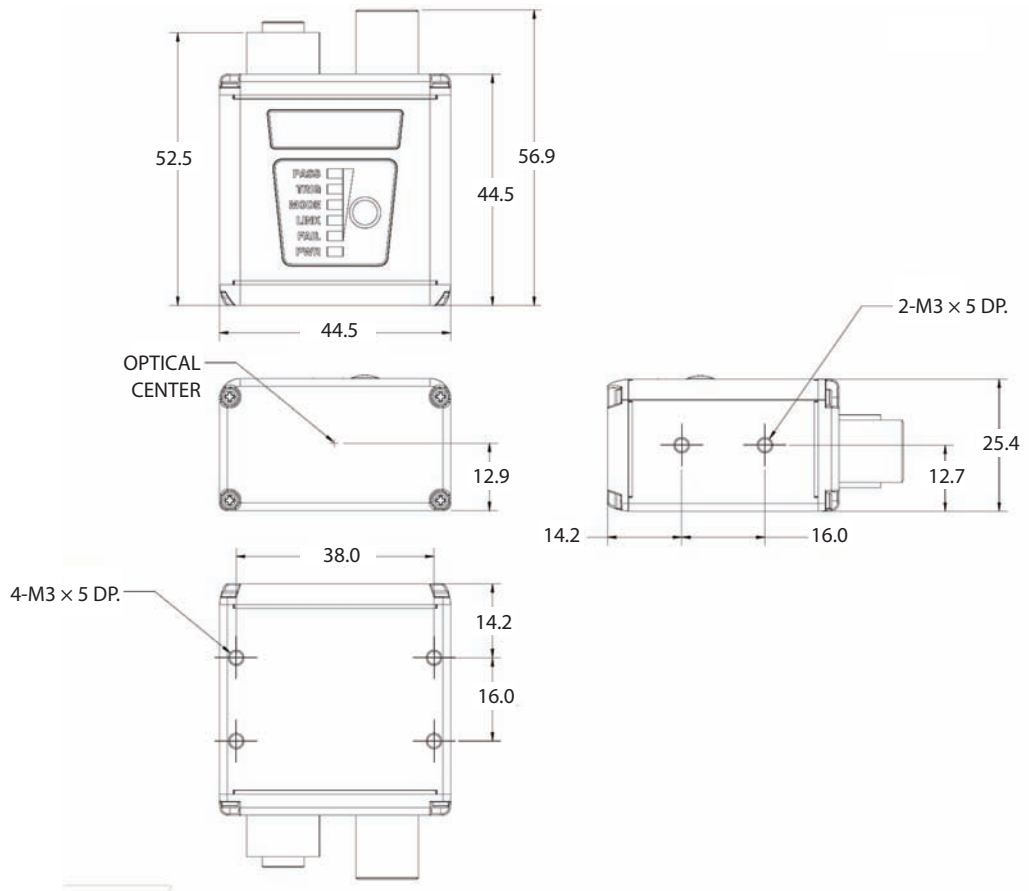
\*5. UL certification rating is DC 24V. Maximum ripple is 200 mV p-p.

Auto Focus Multi Code Reader MicroHAWK V430-F series

Dimensions

(Unit: mm)

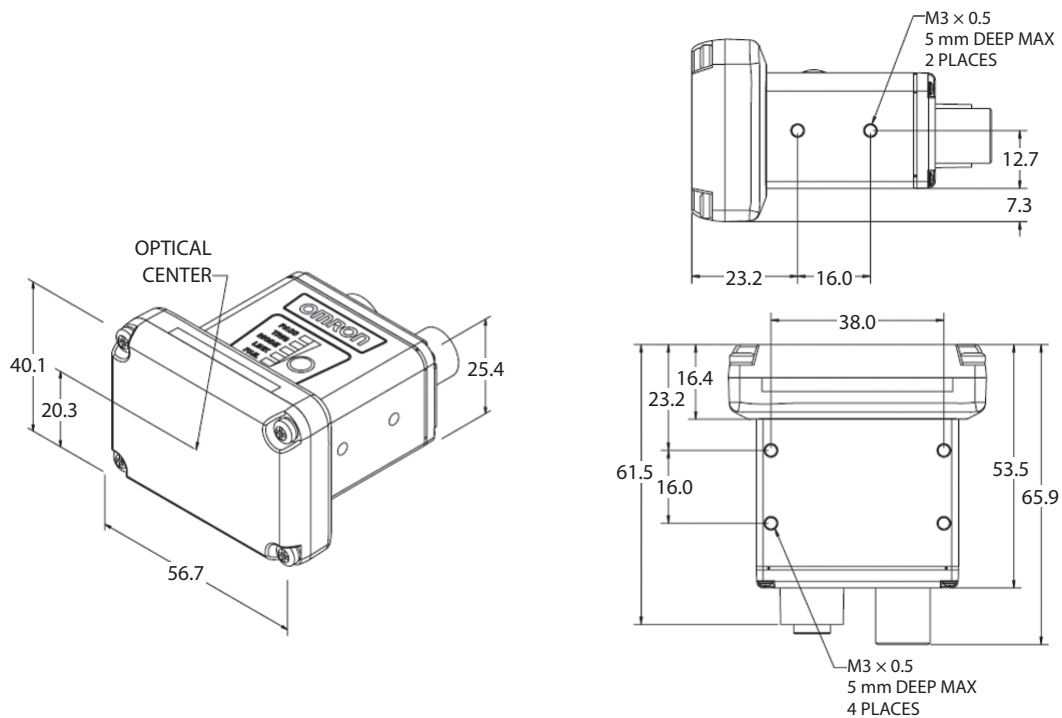
Code Reader  
V430-F



Multi Code Reader

Handheld Code Reader

Code Reader  
V430-F with Alternate Optics and Illumination



Laser Barcode Reader

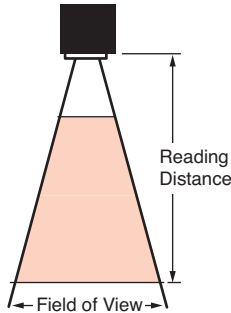
Code Verification System



Auto Focus Multi Code Reader V430-F series

## Read Ranges

Read range specifications are subject to change.



### Fixed Focus Field of View (mm) - Wide Lens

Distance (mm)	0.3 MP		1.2 MP		5 MP	
	Width	Height	Width	Height	Width	Height
50	49	32	53	39	50	38
64	62	39	66	49	63	47
81	76	49	81	61	78	58
102	95	60	101	75	96	72
133	121	78	129	97	124	92
190	171	109	182	136	174	130
300	266	170	283	213	271	202
400	353	225	376	282	359	268

### Fixed Focus Field of View (mm) - Medium Lens

Distance (mm)	0.3 MP		1.2 MP		5 MP	
	Width	Height	Width	Height	Width	Height
50	34	22	36	27	35	26
64	43	27	45	34	43	32
81	53	34	56	42	54	40
102	66	42	70	52	67	50
133	84	54	90	67	86	64
190	119	76	126	95	121	90
300	185	118	196	147	188	140
400	245	156	260	195	249	186

### Fixed Focus Field of View (mm) - Narrow Lens

Distance (mm)	0.3 MP		1.2 MP		5 MP	
	Width	Height	Width	Height	Width	Height
50	15	10	16	12	16	12
64	19	12	21	15	20	15
81	24	15	25	19	24	18
102	30	19	32	24	30	22
133	38	24	40	30	39	29
190	54	34	57	43	54	41
300	83	53	89	67	85	63
400	111	71	118	88	113	84

## Auto Focus Multi Code Reader V430-F series

## Autofocus Field of View (mm) - Wide Lens

Distance (mm)	0.3 MP		1.2 MP		5 MP	
	Width	Height	Width	Height	Width	Height
50	51	33	55	41	52	39
100	97	62	103	77	98	73
150	142	90	151	113	144	107
200	187	119	199	149	190	142
250	232	148	247	185	236	176
300	277	177	295	221	282	210

## Autofocus Field of View (mm) - Medium Lens

Distance (mm)	0.3 MP		1.2 MP		5 MP	
	Width	Height	Width	Height	Width	Height
50	33	21	36	27	34	25
100	63	40	67	50	64	48
150	92	59	98	73	94	70
200	121	77	129	97	123	92
250	151	96	160	120	153	114
300	180	115	191	144	183	136

## Autofocus Field of View (mm) - Narrow Lens

Distance (mm)	0.3 MP		1.2 MP		5 MP	
	Width	Height	Width	Height	Width	Height
50	15	10	16	12	16	12
100	29	19	31	23	30	22
150	43	27	45	34	43	32

## Long Range Autofocus Field of View (mm)

Distance (mm)	0.3 MP		1.2 MP		5 MP	
	Width	Height	Width	Height	Width	Height
75	22	14	24	18	23	17
100	29	19	31	23	30	22
200	56	36	60	45	57	43
300	83	53	89	67	85	63
400	111	71	118	88	113	84
500	138	88	147	110	140	105
600	165	105	176	132	168	125
700	192	123	204	153	196	146
800	219	140	233	175	223	166
900	247	157	262	197	251	187
1000	274	175	291	218	279	208
1200	328	209	349	262	334	249
1300	355	227	378	283	362	270
1400	382	244	407	305	389	290
1500	410	261	436	327	417	311

## Related Manuals

Man.No.	Model	Manual
Z432	V320-F, V330-F, V420-F, V430-F	MicroHAWK V320-F / V330-F / V420-F / V430-F User Manual



## Auto Focus Multi Code Reader

# MicroHAWK V420-F series

### Auto Focus Multi Code Reader



The MicroHAWK V420-F Auto Focus Multi Code Reader has the same reading ability as the MicroHAWK V430-F Series but different communication interfaces.

- RS-232, USB, Ethernet Over USB
- IP54 Enclosure

• See the V430-F Series on page 6 for the common features. Refer to the V420-F series datasheet (Cat. No. Q275) for details.

### Ordering Information

#### Code Readers

##### Categories:

##### 1. Fixed Focus Camera

- V420-F Monochrome Fixed Focus Camera
- V420-F Color Fixed Focus Camera
- V420-F 1.2 MP Monochrome Fixed Focus Camera with Narrow Lens

##### 2. Autofocus Camera

- V420-F 0.3 MP Monochrome Autofocus Camera (50 -300 mm)
- V420-F 1.2 MP Monochrome Autofocus Camera (50 – 300 mm for Wide and Medium Lens, 40 – 150 mm for Narrow Lens)
- V420-F Color Autofocus Camera (50 - 300 mm)
- V420-F 1.2 MP Monochrome Long Range Autofocus Camera (75 - 1160 mm)

#### 1a) V420-F Monochrome Fixed Focus Camera: Valid Combinations

##### V420-F[XXX][Y][ZZZ]-[L][C][P]

Key	Classification	Code	Meaning
XXX	Focus Distance (mm)	050	Fixed Focus at 50 mm
		064	Fixed Focus at 64 mm
		081	Fixed Focus at 81 mm
		102	Fixed Focus at 102 mm
		133	Fixed Focus at 133 mm
		190	Fixed Focus at 190 mm
		300	Fixed Focus at 300 mm
Y	Lens	W	Wide Field of View - 5.2 mm Focal Length Lens
		M	Medium Field of View – 7.7 mm Focal Length Lens
ZZZ	Sensor	03M	752 x 480 (0.3 MP) Pixel, Mono Sensor, Global Shutter
		12M	1280 x 960 (1.2 MP) Pixel, Mono Sensor, Global Shutter
L	Light Type	N	No Outer Light
		S	Standard Outer Light
C	Light Color	N	No Outer Light
		R	Red
		W	White
P	Software License	P	High Speed, Plus Mode
		X	High Speed, X-Mode

Auto Focus Multi Code Reader MicroHAWK V420-F series

**1b) V420-F 5.0 MP Color Fixed Focus Camera: Valid Combinations**

Note: 5 MP Color cameras are available with No Outer Light or White Light options only.

**V420-F[XXX][Y]50C-[L][C][P]**

Key	Classification	Code	Meaning
XXX	Focus Distance (mm)	050	Fixed Focus at 50 mm
		064	Fixed Focus at 64 mm
		081	Fixed Focus at 81 mm
		102	Fixed Focus at 102 mm
		133	Fixed Focus at 133 mm
		190	Fixed Focus at 190 mm
		300	Fixed Focus at 300 mm
Y	Lens	W	Wide Field of View - 5.2 mm Focal Length Lens
		M	Medium Field of View - 7.7 mm Focal Length Lens
L	Light Type	N	No Outer Light
		S	Standard Outer Light
C	Light Color	N	No Outer Light
		W	White
P	Software License	P	High Speed, Plus Mode
		X	High Speed, X-Mode

**1c) V420-F 1.2 MP Monochrome Fixed Focus Camera with Narrow Lens: Valid Combinations**

Note: Fixed Focus Narrow lens option available for 1.2 MP Mono camera only.

**V420-F[XXX]N12M-[L][C][P]**

Key	Classification	Code	Meaning
XXX	Focus Distance (mm)	400	Fixed Focus at 400 mm
L	Light Type	N	No Outer Light
		S	Standard Outer Light
C	Light Color	N	No Outer Light
		R	Red
		W	White
P	Software License	P	High Speed, Plus Mode
		X	High Speed, X-Mode

**2a) V420-F 0.3 MP Monochrome Autofocus Camera (50 - 300 mm): Valid Combinations**

**V420-F000[Y]03M-[L][C][P]**

Key	Classification	Code	Meaning
Y	Lens	W	Wide Field of View - 5.2 mm Focal Length Lens
		M	Medium Field of View - 7.7 mm Focal Length Lens
L	Light Type	N	No Outer Light
		S	Standard Outer Light
C	Light Color	N	No Outer Light
		R	Red
		W	White
P	Software License	P	High Speed, Plus Mode
		X	High Speed, X-Mode

Multi Code Reader  
Handheld Code Reader  
Laser Barcode Reader  
Code Verification System



## Auto Focus Multi Code Reader MicroHAWK V420-F series

**2b) V420-F 1.2 MP Monochrome Autofocus Camera (50 - 300 mm for Wide and Medium, 40 – 150 mm for Narrow): Valid Combinations****V420-F000[Y]12M-[L][C][P]**

Key	Classification	Code	Meaning
Y	Lens	W	Wide Field of View - 5.2 mm Focal Length Lens
		M	Medium Field of View – 7.7 mm Focal Length Lens
		N	Narrow Field of View – 16 mm Focal Length Lens
L	Light Type	N	No Outer Light
		S	Standard Outer Light
C	Light Color	N	No Outer Light
		R	Red
		W	White
P	Software License	P	High Speed, Plus Mode
		X	High Speed, X-Mode

**2c) V420-F 5.0 MP Color Autofocus Camera (50 - 300 mm): Valid Combinations**

Note: Narrow Autofocus lens option not available for color camera.

**V420-F000[Y]50C-[L][C][P]**

Key	Classification	Code	Meaning
Y	Lens	W	Wide Field of View - 5.2 mm Focal Length Lens
		M	Medium Field of View – 7.7 mm Focal Length Lens
L	Light Type	N	No Outer Light
		S	Standard Outer Light
C	Light Color	N	No Outer Light
		W	White
P	Software License	P	High Speed, Plus Mode
		X	High Speed, X-Mode

**2d) V420-F 1.2 MP Monochrome Long Range Autofocus Camera (75 - 1160 mm): Valid Combinations**

Note: Autofocus Long Range lens option available for 1.2 MP Monochrome camera only.

**V430-F000L12M-[L][C][P]**

Key	Classification	Code	Meaning
L	Light Type	N	No Outer Light
		S	Standard Outer Light
C	Light Color	N	No Outer Light
		R	Red
		W	White
P	Software License	P	High Speed, Plus Mode
		X	High Speed, X-Mode

Auto Focus Multi Code Reader MicroHAWK V420-F series

**Mounting Options**

Type	Model
L Bracket Adjustable Angle Mounting Kit	V430-AM0
1/4-20 Camera Mounting Block Kit	V430-AM1
4" (102 mm) Ram Mount Stand	V430-AM2
APG Pan and Tilt Camera Mount	V430-AM3
Nylon Screw and Washer Electrical Isolation Mounting Kit	V430-AM4
MS-4 / MINI to V/F4XX-F Adapter Plate	V430-AM5
Smart Ring Light to V/F4XX-F Mounting Bracket	V430-AM6
QX / Vision HAWK to V/F4XX-F Adapter Plate	V430-AM7

**Optics Options**

Type	Model
Front Window Installation Kit	V430-AF10
Diffuser Installation Kit	V430-AF11
Polarizer Installation Kit	V430-AF12
Right Angle Mirror Installation Kit	V430-AF3
YAG Filter Installation Kit	V430-AF4
ESD-Safe Window Installation Kit	V430-AF5
Red Filter Installation Kit	V430-AF6
Blue Filter Installation Kit	V430-AF7

**Lighting Options**

Type	Model
Red Light Installation Kit	V430-ALR
White Light Installation Kit	V430-ALW
Blue Light Installation Kit	V430-ALB
IR Light Installation Kit	V430-ALI

Multi Code Reader

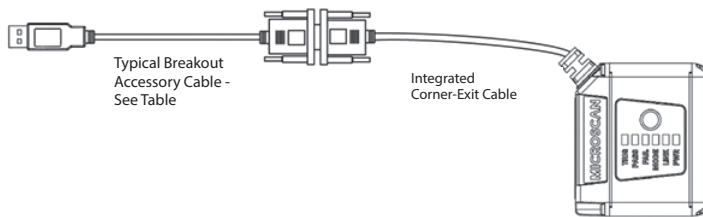
Handheld Code Reader

Laser Barcode Reader

Code Verification System

## Auto Focus Multi Code Reader MicroHAWK V420-F series

### Wiring Options



Appearance	Category	Length / Spec	Model
Accessory USB Cable To Host	USB Breakout Cable	1 Meter	V420-WUB-1M
Accessory USB Cable To Host Power Supply	Cable – USB Breakout with External Power Input	1 Meter	V420-WUX-1M
	Power Supply	2 Meters	97-9000006-01
	Kit – Cable and Power Supply	-	V420-AC1
To Host Power Supply	Cable – RS-232 Breakout (DB-15) and External Power Input	1 Meter	V420-WRX-1M
	Power Supply	2 Meters	97-9000006-01
	Kit – Cable and Power Supply	-	V420-AC0
I/O To Power Supply Accessory USB Cable To Host	Cable – USB, IO, and Power Breakout	1 Meter	V420-WU8X-1M
	Power Supply	2 Meters	97-000011-02
	Kit – Cable and Power Supply	-	V420-AC2
I/O USB Breakout To Power Supply RS-232 Breakout	Cable – RS-232, USB, IO, and Power Breakout	1 Meter	V420-WRU8X-1M
	Power Supply	2 Meters	97-000011-02
RS-232C cable connecting Omron's CS/CJ/NJ Controller	RS-232C cable connecting Omron's CS/CJ/NJ Controller	2 Meters	V430-WPLC-2M

Auto Focus Multi Code Reader MicroHAWK V420-F series

Ratings and Specifications

V420-F		V420-F□□□□03M-□□□□	V420-F□□□□12M□□□□	V420-F□□□□50C-□□□□
Symbologies *1	1D Symbologies	Code 39, Code 128, BC412, Interleaved 2 of 5, UPC/EAN, Codabar, Code 93, Pharmacode, PLANET, Postnet, Japanese Post, Australian Post, Royal Mail, Intelligent Mail, KIX		
	2D Symbologies	Data Matrix (ECC 0-200), QR Code, Micro QR Code, Aztec Code, DotCode		
	Stacked Symbologies	PDF417, MicroPDF417, GS1 Databar (Composite and Stacked)		
Reading Performance *2	Number of Reading Digits	No Upper Limit (depending on bar width and reading distance)		
	Aiming Light	Two Blue LEDs		
	Illumination	Inner LEDs: Four White and Four Red (Wavelength: 625 nm)		
		Outer LEDs:	8 Red or White	8 Red or White
	Reading Distance / Field of View	Refer to <i>Read Ranges</i> section for detail.		
	Pitch Angle (α) *3	±30°		
	Skew Angle (β) *3	±30°		
Tilt Angle (γ) *3	±180°			
Image Capture	Focus	Liquid Lens Autofocus or Fixed Focus (Wide = 5.2 mm, Medium = 7.7 mm, Narrow = 16 mm, L = 16 mm)		
	Resolution	752 (H) x 480 (V)	1280 (H) x 960 (V)	2592 (H) x 1944 (V)
	Color / Monochrome	Monochrome CMOS	Monochrome CMOS	Color CMOS
	Shutter	Global Shutter	Shutter Global Shutter	Rolling Shutter
	Frames per Second	60 fps	42 fps	5 fps
	Exposure	50 to 100,000 μs		
Image Logging	FTP			
Trigger	External Trigger (Edge or Level), Communication Trigger (Ethernet, RS-232C)			
I/O Specifications	Input Signals	Trigger Input: 5-28 V rated (0.16 mA @ 5V DC); New Master: 5 to 28 V rated (0.16 mA @ 5VDC); Default: 3.3 V rated (0 mA @ 3.3 V)		
	Output Signals	3 Signals : 5 V TTL-compatible, can sink 10 mA and source 10 mA		
Communication	Connectivity	RS-232C, USB 2.0 High Speed, Ethernet over USB/HID		
	Ethernet Specifications	100BASE-TX / 10BASE-T		
Indicator LEDs	PASS (Green), TRIG (Amber), MODE (Amber), LINK (Amber), FAIL (Red), PWR (Green)			
Power Supply Voltage	5 VDC +/- 5%			
Current Consumption	650 mA at 5 VDC (max.)			
Environmental Immunity*4	Ambient Temperature Range	Operating: 0 to 45° C Storage: -50 to 75°C (No Icing or Condensation)		
	Ambient Humidity Range	Operating and storage: 5% to 95% (Non-Condensing)		
	Ambient Atmosphere	No Corrosive Gases		
	Vibration Resistance (Destructive)	Sine Vibration: 10 Hz to 55 Hz, 0.35 mm displacement, 20 cycles/axis. Random Vibration: 20 Hz to 2000 Hz, 6.295 Grms, 30 min/axis		
	Shock Resistance (Destructive)	50G, 11 ms, sawtooth profile. 3X in each X, Y, Z axis		
	Degree of Protection	IEC 60529 IP54		
Weight	Main Body Only	120 g		
	Packaging Weight	Approx. 230 g (including packing)		
Dimensions	Main Body Dimensions	44.5 (W) × 38.1 (D) × 25.4 (H) mm		
	Packaging Dimensions	170 (W) × 117 (D) × 86 (H) mm		
Accessories	ReadMeFirst, CE Compliance Sheet			
LED Safety Standard	IEC 62471-1: 2006 Risk-Exempt Group			
Safety Standards	EN 55024:2010, EN 55032:2015 + AC:2016 FCC Part 15, Subpart B (Class B) UL60950-1 BIS, RCM, KC EAC, BSMI			
Materials	Case	Aluminum Diecast, Alumite (Black)		
	Reading Window	Acrylic		
Software	WebLink			

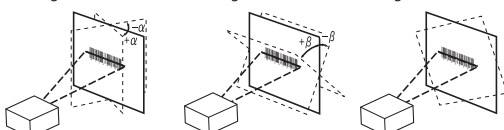
\*1. These symbologies are supported based on Omron's read capability validation standard. Omron recommends that validation be performed for each application.

\*2. Unless otherwise specified, reading performance is defined with center of field of view, angle R=∞.

\*3. Pitch angle

Skew angle

Tilt angle

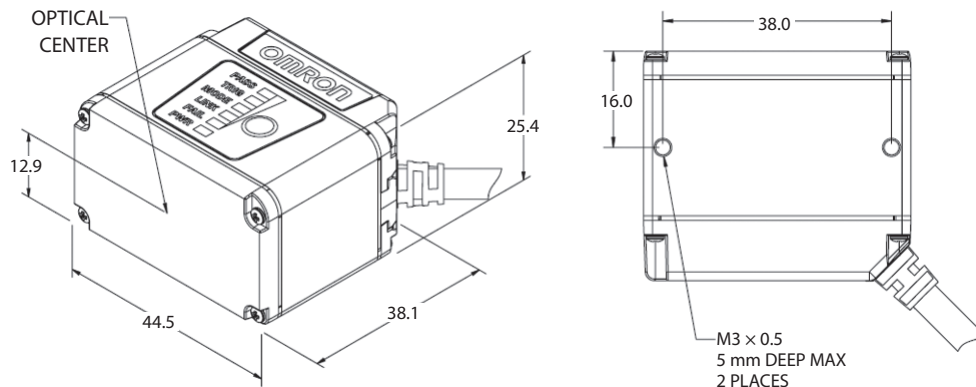


\*4. In an electrically noisy environment, use only the V430-F in combination with a noise filter cable (V430-W□□F-□□M) to ensure proper operation.

Auto Focus Multi Code Reader MicroHAWK V420-F series

Dimensions

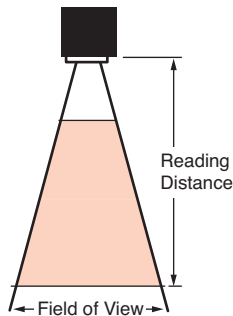
(Unit: mm)



Multi Code Reader

Read Ranges

Read range specifications are subject to change.



Handheld Code Reader

Fixed Focus Field of View (mm) - Wide Lens

Distance (mm)	0.3 MP		1.2 MP		5 MP	
	Width	Height	Width	Height	Width	Height
50	49	32	53	39	50	38
64	62	39	66	49	63	47
81	76	49	81	61	78	58
102	95	60	101	75	96	72
133	121	78	129	97	124	92
190	171	109	182	136	174	130
300	266	170	283	213	271	202
400	353	225	376	282	359	268

Laser Barcode Reader

Fixed Focus Field of View (mm) - Medium Lens

Distance (mm)	0.3 MP		1.2 MP		5 MP	
	Width	Height	Width	Height	Width	Height
50	34	22	36	27	35	26
64	43	27	45	34	43	32
81	53	34	56	42	54	40
102	66	42	70	52	67	50
133	84	54	90	67	86	64
190	119	76	126	95	121	90
300	185	118	196	147	188	140
400	245	156	260	195	249	186

Code Verification System

Auto Focus Multi Code Reader MicroHAWK V420-F series

**Read Ranges**

**Fixed Focus Field of View (mm) - Narrow Lens**

Distance (mm)	0.3 MP		1.2 MP		5 MP	
	Width	Height	Width	Height	Width	Height
50	15	10	16	12	16	12
64	19	12	21	15	20	15
81	24	15	25	19	24	18
102	30	19	32	24	30	22
133	38	24	40	30	39	29
190	54	34	57	43	54	41
300	83	53	89	67	85	63
400	111	71	118	88	113	84

**Autofocus Field of View (mm) - Wide Lens**

Distance (mm)	0.3 MP		1.2 MP		5 MP	
	Width	Height	Width	Height	Width	Height
50	51	33	55	41	52	39
100	97	62	103	77	98	73
150	142	90	151	113	144	107
200	187	119	199	149	190	142
250	232	148	247	185	236	176
300	277	177	295	221	282	210

**Autofocus Field of View (mm) - Medium Lens**

Distance (mm)	0.3 MP		1.2 MP		5 MP	
	Width	Height	Width	Height	Width	Height
50	33	21	36	27	34	25
100	63	40	67	50	64	48
150	92	59	98	73	94	70
200	121	77	129	97	123	92
250	151	96	160	120	153	114
300	180	115	191	144	183	136

**Autofocus Field of View (mm) - Narrow Lens**

Distance (mm)	0.3 MP		1.2 MP		5 MP	
	Width	Height	Width	Height	Width	Height
50	15	10	16	12	16	12
100	29	19	31	23	30	22
150	43	27	45	34	43	32

Multi Code Reader

Handheld Code Reader

Laser Barcode Reader

Code Verification System

## Auto Focus Multi Code Reader MicroHAWK V420-F series

## Long Range Autofocus Field of View (mm)

Distance (mm)	0.3 MP		1.2 MP		5 MP	
	Width	Height	Width	Height	Width	Height
75	22	14	24	18	23	17
100	29	19	31	23	30	22
200	56	36	60	45	57	43
300	83	53	89	67	85	63
400	111	71	118	88	113	84
500	138	88	147	110	140	105
600	165	105	176	132	168	125
700	192	123	204	153	196	146
800	219	140	233	175	223	166
900	247	157	262	197	251	187
1000	274	175	291	218	279	208
1200	328	209	349	262	334	249
1300	355	227	378	283	362	270
1400	382	244	407	305	389	290
1500	410	261	436	327	417	311

Multi Code Reader

Handheld Code Reader

Laser Barcode Reader

Code Verification System

## Related Manuals

Man.No.	Model	Manual
Z432	V320-F, V330-F, V420-F, V430-F	MicroHAWK V320-F / V330-F / V420-F / V430-F User Manual





Multicode Reader

# MicroHAWK V330-F series

## Compact Ethernet barcode reader.

- Simple configuration with WebLink.
- 5 megapixel sensor available.
- IP40.
- Single snap-in RJ45 connector and cable.
- Ethernet TCP/IP.
- Power over Ethernet.



Refer to the V330-F series datasheet (Cat. No. Q276) for details.

## Ordering Information

### Code Readers

#### Categories:

#### 1. Fixed Focus Camera

- a) V330-F Monochrome and Color Fixed Focus Camera with Standard Lens
- b) V330-F Monochrome and Color Fixed Focus Camera with Narrow Lens

#### 1a) V330-F Mono and Color Camera with Standard Lens: Valid Combinations

#### V330-F[XXX][Y][ZZZ]-NN[P]

Key	Classification	Code	Meaning
XXX	Focus Distance (mm)	050	Fixed Focus at 50 mm
		064	Fixed Focus at 64 mm
		081	Fixed Focus at 81 mm
		102	Fixed Focus at 102 mm
		133	Fixed Focus at 133 mm
		190	Fixed Focus at 190 mm
		300	Fixed Focus at 300 mm
Y	Lens	W	Wide Field of View - 5.2 mm Focal Length Lens
		M	Medium Field of View - 7.7 mm Focal Length Lens
ZZZ	Sensor	03M	752 x 480 (0.3 MP) Pixel, Mono Sensor, Global Shutter
		12M	1280 x 960 (1.2 MP) Pixel, Mono Sensor, Global Shutter
		50C	2592 x 1944 (5 MP) Pixel, Color Sensor, Rolling Shutter
P	Software License	P	High Speed, Plus Mode
		X	High Speed, X-Mode

Multicode Reader MicroHAWK V330-F series

**1b) V330-F Mono and Color Camera with Narrow Lens: Valid Combinations**

Note: 50 mm Fixed Focus option not available with Narrow Lens.

**V330-F[XXX]N[ZZZ]-NN[P]**

Key	Classification	Code	Meaning
XXX	Focus Distance (mm)	064	Fixed Focus at 64 mm
		081	Fixed Focus at 81 mm
		102	Fixed Focus at 102 mm
		133	Fixed Focus at 133 mm
		190	Fixed Focus at 190 mm
		300	Fixed Focus at 300 mm
ZZZ	Sensor	03M	752 x 480 (0.3 MP) Pixel, Mono Sensor, Global Shutter
		12M	1280 x 960 (1.2 MP) Pixel, Mono Sensor, Global Shutter
		50C	2592 x 1944 (5 MP) Pixel, Color Sensor, Rolling Shutter
P	Software License	P	High Speed, Plus Mode
		X	High Speed, X-Mode

**Optics Options**

Type	Model
Diffuser Kit – Peel and Stick Accessory. Exterior to unit.	V330-AF1
Polarizer Kit – Peel and Stick Accessory. Exterior to unit.	V330-AF2

**Direct Wiring Options**

Type	Length	Model
Standard Ethernet Cables, In-Cabinet Use; Standard RJ45 Connectors on Both Ends; Green	1 Meter	XS6W-5PUR8SS100CM-G
	3 Meters	XS6W-5PUR8SS300CM-G
	5 Meters	XS6W-5PUR8SS500CM-G
	10 Meters	XS6W-5PUR8SS1000CM-G
	15 Meters	XS6W-5PUR8SS1500CM-G
Standard Ethernet Cables, Out-of-Cabinet Use; Rugged RJ45 Connectors on Both Ends; Light Blue	1 Meter	XS5W-T421-CMD-K
	3 Meters	XS5W-T421-EMD-K
	5 Meters	XS5W-T421-GMD-K
	10 Meters	XS5W-T421-JMD-K
	15 Meters	XS5W-T421-KMD-K
High Flex Ethernet Cables for Robot and Cable Tray Use; Rugged RJ45 Connectors on Both Ends; Light Blue	1 Meter	XS5W-T421-CMD-KR
	3 Meters	XS5W-T421-EMD-KR
	5 Meters	XS5W-T421-GMD-KR
	10 Meters	XS5W-T421-JMD-KR
	15 Meters	XS5W-T421-KMD-KR

Multi Code Reader

Handheld Code Reader

Laser Barcode Reader

Code Verification System

## Multicode Reader MicroHAWK V330-F series

## Ratings and Specifications

V330-F		V330-F□□□□03M-□□□□	V330-F□□□□12M□□□□	V330-F□□□□50C-□□□□
Symbologies *1	1D Symbologies	Code 39, Code 128, BC412, Interleaved 2 of 5, UPC/EAN, Codabar, Code 93, Pharmacode, PLANET, Postnet, Japanese Post, Australian Post, Royal Mail, Intelligent Mail, KIX		
	2D Symbologies	Data Matrix (ECC 0-200), QR Code, Micro QR Code, Aztec Code, DotCode		
	Stacked Symbologies	PDF417, MicroPDF417, GS1 Databar (Composite and Stacked)		
Reading Performance *2	Number of Reading Digits	No Upper Limit (depending on bar width and reading distance)		
	Aiming Light	Two Blue LEDs		
	Illumination	Inner LEDs: Four White and Four Red (Wavelength: 625 nm)		
		Outer LEDs:	None	None
	Reading Distance / Field of View	Refer to <i>Read Ranges</i> section for detail.		
	Pitch Angle (α) *3	±30°		
	Skew Angle (β) *3	±30°		
Tilt Angle (γ) *3	±180°			
Image Capture	Focus	Fixed Focus (Wide = 5.2 mm, Medium = 7.7 mm, Narrow = 16 mm)		
	Resolution	752 (H) x 480 (V)	1280 (H) x 960 (V)	2592 (H) x 1944 (V)
	Color / Monochrome	Monochrome CMOS	Monochrome CMOS	Color CMOS
	Shutter	Global Shutter	Global Shutter	Rolling Shutter
	Frames per Second	60 fps	42 fps	5 fps
	Exposure	50 to 100,000 μs		
Image Logging	FTP			
Trigger	Communication Trigger (Ethernet)			
I/O Specifications	Input Signals	Ethernet		
	Output Signals	Ethernet		
Communication	Connectivity	Ethernet TCP/IP		
	Ethernet Specifications	100BASE-TX / 10BASE-T		
Indicator LEDs	PASS (Green), PWR (Green)			
Power Supply Voltage	Source: 44-57 VDC IEEE802.3af POE			
Current Consumption	Max Current: 0.10A			
Environmental Immunity*4	Ambient Temperature Range	Operating: 0 to 40° C Storage: -50 to 75° C (No Icing or Condensation)		
	Ambient Humidity Range	Operating and Storage: 5% to 95% (Non-Condensing)		
	Ambient Atmosphere	No Corrosive Gases		
	Vibration Resistance (Destructive)	Oscillation Frequency: 10 to 150Hz, Half Amplitude: 0.35 mm, Vibration Direction: X/Y/Z, Sweep Time: 8 minute/count, Sweep Count: 10 times		
	Shock Resistance (Destructive)	Impact Force: 150 m/s <sup>2</sup> , Test Direction: 6 directions, three times each (up/down, front/back, left/right)		
	Degree of Protection	IEC 60529 IP40		
Weight	Main Body Only	72 g		
	Packaging Weight	Approx. 180 g (including packing)		
Dimensions	Main Body Dimensions	40 (W) x 63 (D) x 24 (H) mm		
	Packaging Dimensions	170 (W) x 117 (D) x 86 (H) mm		
Accessories	ReadMeFirst, CE Compliance Sheet			
LED Safety Standard	IEC 62471-1: 2006 Risk-Exempt Group			
Safety Standards	EN 55024:2010, EN 55032:2015 + AC:2016 FCC Part 15, Subpart B (Class B) UL60950-1 BIS RCM, KC, EAC, BSMI			
Materials	Case	Aluminum Diecast, Alumite (Black)		
	Reading Window	Acrylic		
Software	WebLink			

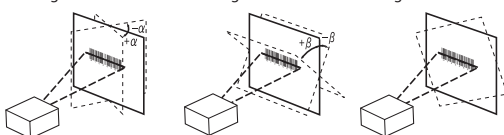
\*1. These symbologies are supported based on Omron's read capability validation standard. Omron recommends that validation be performed for each application.

\*2. Unless otherwise specified, reading performance is defined with center of field of view, angle R=∞.

\*3. Pitch angle

Skew angle

Tilt angle

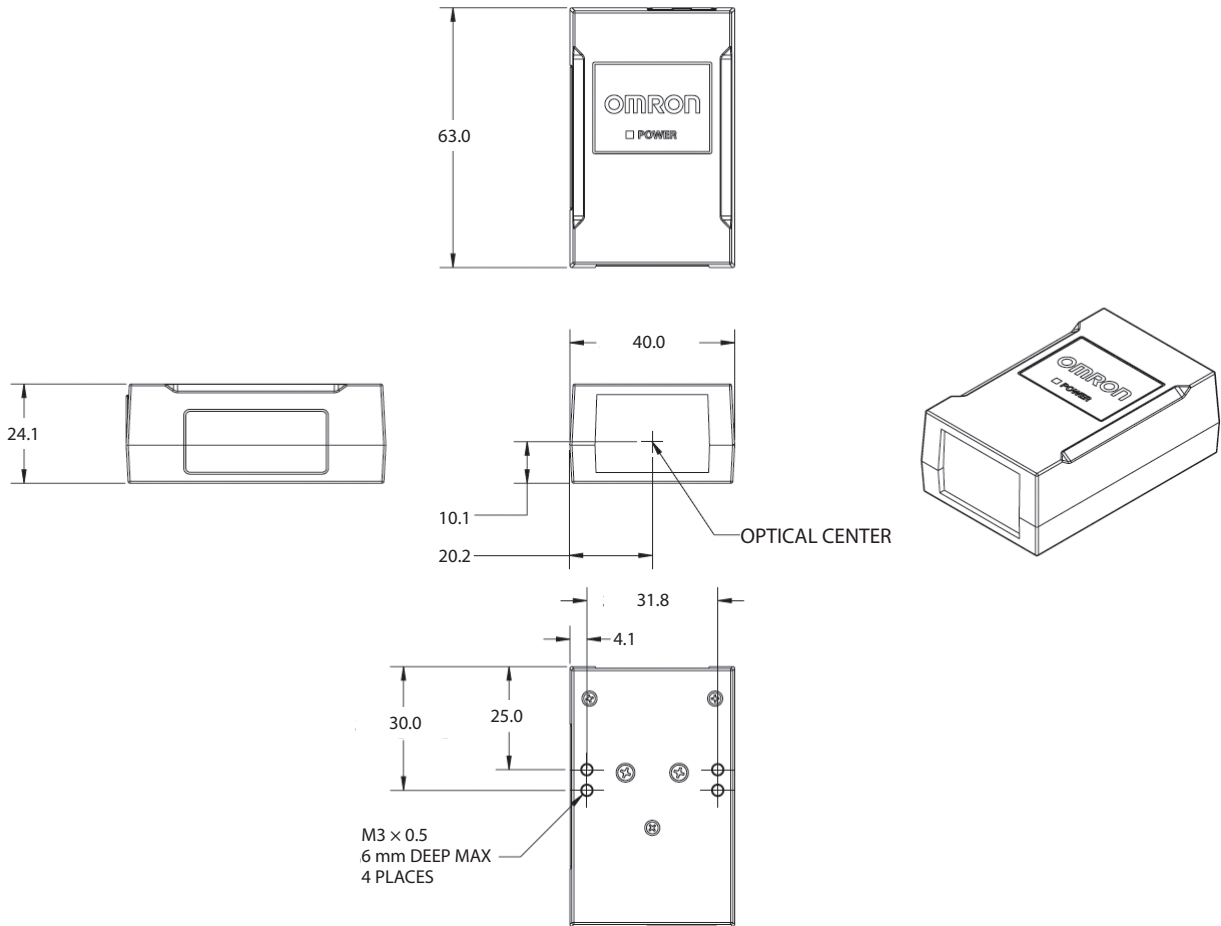


\*4. In an electrically noisy environment, use only the V430-F in combination with a noise filter cable (V430-W□F-□M) to ensure proper operation.

Multicode Reader MicroHAWK V330-F series

Dimensions

(Unit: mm)



Multi Code Reader

Handheld Code Reader

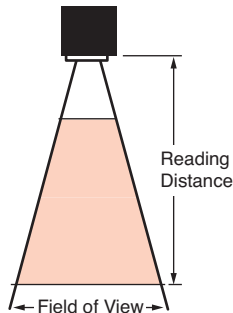
Laser Barcode Reader

Code Verification System

## Multicode Reader MicroHAWK V330-F series

## Read Ranges

Read range specifications are subject to change.



## Fixed Focus Field of View (mm) - Wide Lens

Distance (mm)	0.3 MP		1.2 MP		5 MP	
	Width	Height	Width	Height	Width	Height
50	49	32	53	39	50	38
64	62	39	66	49	63	47
81	76	49	81	61	78	58
102	95	60	101	75	96	72
133	121	78	129	97	124	92
190	171	109	182	136	174	130
300	266	170	283	213	271	202
400	353	225	376	282	359	268

## Fixed Focus Field of View (mm) - Medium Lens

Distance (mm)	0.3 MP		1.2 MP		5 MP	
	Width	Height	Width	Height	Width	Height
50	34	22	36	27	35	26
64	43	27	45	34	43	32
81	53	34	56	42	54	40
102	66	42	70	52	67	50
133	84	54	90	67	86	64
190	119	76	126	95	121	90
300	185	118	196	147	188	140
400	245	156	260	195	249	186

## Fixed Focus Field of View (mm) - Narrow Lens

Distance (mm)	0.3 MP		1.2 MP		5 MP	
	Width	Height	Width	Height	Width	Height
50	15	10	16	12	16	12
64	19	12	21	15	20	15
81	24	15	25	19	24	18
102	30	19	32	24	30	22
133	38	24	40	30	39	29
190	54	34	57	43	54	41
300	83	53	89	67	85	63
400	111	71	118	88	113	84

## Related Manuals

Man.No.	Model	Manual
Z432	V320-F, V330-F, V420-F, V430-F	MicroHAWK V320-F / V330-F / V420-F / V430-F User Manual



Multicode Reader

# MicroHAWK V320-F series

## Compact Ethernet barcode reader.

- Simple configuration with WebLink.
- 5 megapixel sensor available.
- IP40.
- Single snap-in RJ50 connector and cable.
- RS-232, Ethernet via USB.



Refer to the V320-F series datasheet (Cat. No. Q277) for details.

## Ordering Information

### Code Readers

#### Categories:

#### 1. Fixed Focus Camera

- a) V320 Monochrome and Color Fixed Focus Camera with Standard Lens
- b) V320 Monochrome and Color Fixed Focus Camera with Narrow Lens

#### 1a) V320 Mono and Color Camera with Standard Lens: Valid Combinations

#### V320-F[XXX][Y][ZZZ]-NN[P]

Key	Classification	Code	Meaning
XXX	Focus Distance (mm)	050	Fixed Focus at 50 mm
		064	Fixed Focus at 64 mm
		081	Fixed Focus at 81 mm
		102	Fixed Focus at 102 mm
		133	Fixed Focus at 133 mm
		190	Fixed Focus at 190 mm
		300	Fixed Focus at 300 mm
Y	Lens	W	Wide Field of View - 5.2 mm Focal Length Lens
		M	Medium Field of View - 7.7 mm Focal Length Lens
ZZZ	Sensor	03M	752 x 480 (0.3 MP) Pixel, Mono Sensor, Global Shutter
		12M	1280 x 960 (1.2 MP) Pixel, Mono Sensor, Global Shutter
		50C	2592 x 1944 (5 MP) Pixel, Color Sensor, Rolling Shutter
P	Software License	P	High Speed, Plus Mode
		X	High Speed, X-Mode

Multicode Reader MicroHAWK V320-F series

1b) V320 Mono and Color Camera with Narrow Lens: Valid Combinations

Note: 50 mm Fixed Focus option is not available with Narrow Lens.

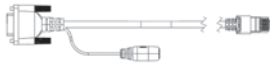
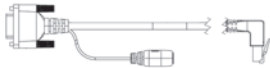



V320-F[XXX]N[ZZZ]-NN[P]

Key	Classification	Code	Meaning
XXX	Focus Distance (mm)	064	Fixed Focus at 64 mm
		081	Fixed Focus at 81 mm
		102	Fixed Focus at 102 mm
		133	Fixed Focus at 133 mm
		190	Fixed Focus at 190 mm
		300	Fixed Focus at 300 mm
ZZZ	Sensor	03M	752 x 480 (0.3 MP) Pixel, Mono Sensor, Global Shutter
		12M	1280 x 960 (1.2 MP) Pixel, Mono Sensor, Global Shutter
		50C	2592 x 1944 (5 MP) Pixel, Color Sensor, Rolling Shutter
P	Software License	P	High Speed, Plus Mode
		X	High Speed, X-Mode

Optics Options

Type	Model
Diffuser Kit – Peel and Stick Accessory. Exterior to unit.	V330-AF1
Polarizer Kit – Peel and Stick Accessory. Exterior to unit.	V330-AF2

Direct Wiring Options

Appearance	Type	Length	Model
	RJ50 to RS-232 and External Power Straight	2 Meters	V320-WRX-2M
	RJ50 to RS-232 and External Power Right Angle	2 Meters	V320-WRXLR-2M
	Power Supply for V320-WRX-2M and V320-WRXLR-2M	2 Meters	97-9000006-01
	RJ50 to Flying Leads Straight	3 Meters	V320-W8-3M
	RJ50 to Flying Leads Right Angle to the Right *	3 Meters	V320-W8LR-3M

\* Right angle cables.

Right angle to the right





Multicode Reader MicroHAWK V320-F series

Wiring Options

Appearance	Category	Length / Spec	Model
	Adapter V/F320-F to all V420-F Cable Accessories RJ50 to DB-15	1 Meter	V320-WR-1M
	Adapter V/F320-F to all V420-F Cable Accessories Right Angle to the Right* RJ50 to DB-15	1 Meter	V320-WRLR-1M
	USB Breakout Cable	1 Meter	V420-WUB-1M
	Cable - USB Breakout With External Power Input	1 Meter	V420-WUX-1M
	Power Supply	2 Meters	97-9000006-01
	Kit - Cable and Power Supply	-	V420-AC1
	Cable - RS-232 Breakout (DB-15) and External Power Input	1 Meter	V420-WRX-1M
	Power Supply	2 Meters	97-9000006-01
	Kit - Cable and Power Supply	-	V420-AC0
	Cable - USB, IO, and Power Breakout	1 Meter	V420-WU8X-1M
	Power Supply	2 Meters	97-000011-02
	Kit - Cable and Power Supply	-	V420-AC2
	Cable - RS-232, USB, IO, and Power Breakout	1 Meter	V420-WRU8X-1M
	Power Supply	2 Meters	97-000011-02

\* Right angle cables.

**Right angle to the right**



Multi Code Reader

Handheld Code Reader

Laser Barcode Reader

Code Verification System

Multicode Reader MicroHAWK V320-F series

Ratings and Specifications

V320-F		V320-F□□□□03M-□□□□	V320-F□□□□12M□□□□	V320-F□□□□50C-□□□□	
Symbologies *1	1D Symbologies	Code 39, Code 128, BC412, Interleaved 2 of 5, UPC/EAN, Codabar, Code 93, Pharmacode, PLANET, Postnet, Japanese Post, Australian Post, Royal Mail, Intelligent Mail, KIX			
	2D Symbologies	Data Matrix (ECC 0-200), QR Code, Micro QR Code, Aztec Code, DotCode			
	Stacked Symbologies	PDF417, MicroPDF417, GS1 Databar (Composite and Stacked)			
Reading Performance *2	Number of Reading Digits	No Upper Limit (depending on bar width and reading distance)			
	Aiming Light	Two Blue LEDs			
	Illumination	Inner LEDs: Four White and Four Red (Wavelength: 625 nm)			
		Outer LEDs:	None	None	None
		None	None	None	
	Reading Distance / Field of View	Refer to <i>Read Ranges</i> section for detail.			
	Pitch Angle (α) *3	±30°			
Skew Angle (β) *3	±30°				
Tilt Angle (γ) *3	±180°				
Image Capture	Focus	Fixed Focus (Wide = 5.2 mm, Medium = 7.7 mm, Narrow = 16 mm)			
	Resolution	752 (H) x 480 (V)	1280 (H) x 960 (V)	2592 (H) x 1944 (V)	
	Color / Monochrome	Monochrome	CMOS Monochrome	CMOS Color CMOS	
	Shutter	Global Shutter	Global Shutter	Rolling Shutter	
	Frames per Second	60 fps	42 fps	5 fps	
	Exposure	50 to 100,000 μs			
Image Logging	FTP				
Trigger	External Trigger (Edge or Level), Communication Trigger (Ethernet, RS-232C)				
I/O Specifications	Input Signals	Trigger Input: 5-28 V rated (0.16 mA @ 5 VDC); Default: 3.3 V rated (0 mA @ 3.3 V)			
	Output Signals	One Signal (Strobe): 5 V TTL-compatible, can sink 10 mA and source 10 mA			
Communication	Connectivity	USB 2.0 Full-Speed (Ethernet over USB and HID), RS-232			
	Ethernet Specifications	100BASE-TX / 10BASE-T			
Indicator LEDs	PASS (Green), PWR (Green)				
Power Supply Voltage	5 VDC +/- 5%				
Current Consumption	450 mA at 5 VDC (max.)				
Environmental Immunity*4	Ambient Temperature Range	Operating: 0 to 40° C Storage: -50 to 75° C (No Icing or Condensation)			
	Ambient Humidity Range	Operating and Storage: 5% to 95% (Non-Condensing)			
	Ambient Atmosphere	No Corrosive Gases			
	Vibration Resistance (Destructive)	Oscillation Frequency: 10 to 150 Hz, Half Amplitude: 0.35 mm, Vibration Direction: X/Y/Z, Sweep Time: 8 minute/count, Sweep Count: 10 times			
	Shock Resistance (Destructive)	Impact Force: 150 m/s <sup>2</sup> , Test Direction: 6 directions, three times each (up/down, front/back, left/right)			
	Degree of Protection	IEC 60529 IP40			
Weight	Main Body Only	59 g			
	Packaging Weight	Approx. 166 g (including packing)			
Dimensions	Main Body Dimensions	52 (W) x 39 (D) x 24 (H) mm			
	Packaging Dimensions	170 (W) x 117 (D) x 86 (H) mm			
Accessories	ReadMeFirst, CE Compliance Sheet				
LED Safety Standard	IEC 62471-1: 2006 Risk-Exempt Group				
Safety Standards	EN 55024:2010, EN 55032:2015 + AC:2016 FCC Part 15, Subpart B (Class B) UL60950-1 BIS RCM, KC, EAC, BSMI				
Materials	Case	Aluminum Diecast, Alumite (Black)			
	Reading Window	Acrylic			
Software	WebLink				

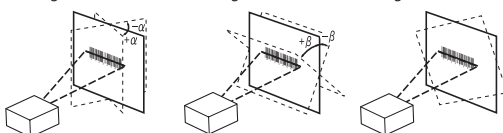
\*1. These symbologies are supported based on Omron's read capability validation standard. Omron recommends that validation be performed for each application.

\*2. Unless otherwise specified, reading performance is defined with center of field of view, angle R=∞.

\*3. Pitch angle

Skew angle

Tilt angle



\*4. In an electrically noisy environment, use only the V430-F in combination with a noise filter cable (V430-W□F-□M) to ensure proper operation.

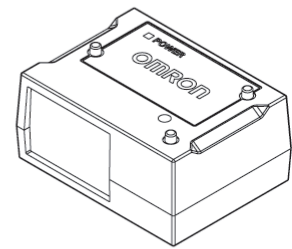
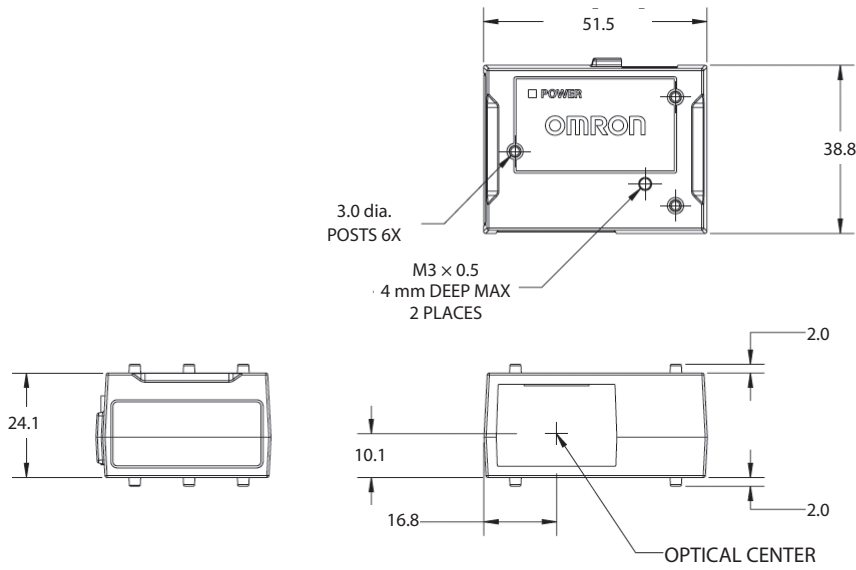
Multi Code Reader  
Handheld Code Reader  
Laser Barcode Reader  
Code Verification System

Multicode Reader MicroHAWK V320-F series

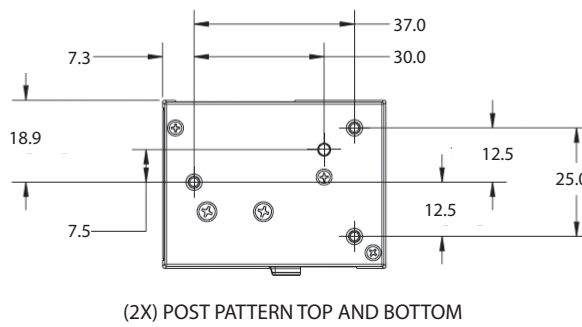
Dimensions

(Unit: mm)

Multi Code Reader



Handheld Code Reader



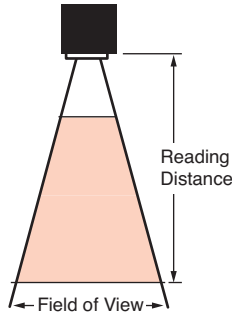
Laser Barcode Reader

Code Verification System

Multicode Reader MicroHAWK V320-F series

Read Ranges

Read range specifications are subject to change.



Fixed Focus Field of View (mm) - Wide Lens

Distance (mm)	0.3 MP		1.2 MP		5 MP	
	Width	Height	Width	Height	Width	Height
50	49	32	53	39	50	38
64	62	39	66	49	63	47
81	76	49	81	61	78	58
102	95	60	101	75	96	72
133	121	78	129	97	124	92
190	171	109	182	136	174	130
300	266	170	283	213	271	202
400	353	225	376	282	359	268

Fixed Focus Field of View (mm) - Medium Lens

Distance (mm)	0.3 MP		1.2 MP		5 MP	
	Width	Height	Width	Height	Width	Height
50	34	22	36	27	35	26
64	43	27	45	34	43	32
81	53	34	56	42	54	40
102	66	42	70	52	67	50
133	84	54	90	67	86	64
190	119	76	126	95	121	90
300	185	118	196	147	188	140
400	245	156	260	195	249	186

Fixed Focus Field of View (mm) - Narrow Lens

Distance (mm)	0.3 MP		1.2 MP		5 MP	
	Width	Height	Width	Height	Width	Height
50	15	10	16	12	16	12
64	19	12	21	15	20	15
81	24	15	25	19	24	18
102	30	19	32	24	30	22
133	38	24	40	30	39	29
190	54	34	57	43	54	41
300	83	53	89	67	85	63
400	111	71	118	88	113	84

Related Manuals

Man.No.	Model	Manual
Z432	V320-F, V330-F, V420-F, V430-F	MicroHAWK V320-F / V330-F / V420-F / V430-F User Manual

## 5-Megapixel C-Mount Code Reader

# V440-F

### C-Mount Code Reader



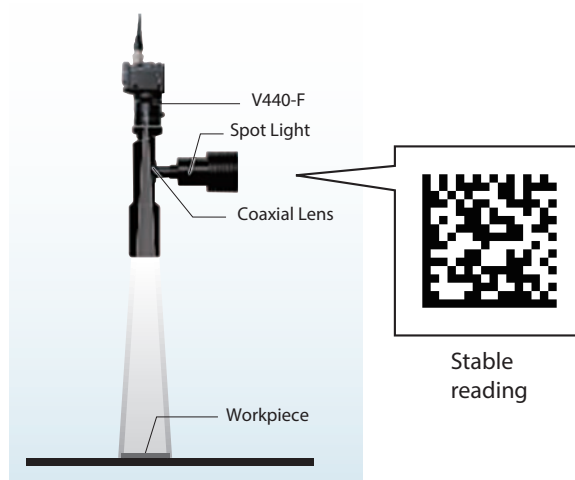
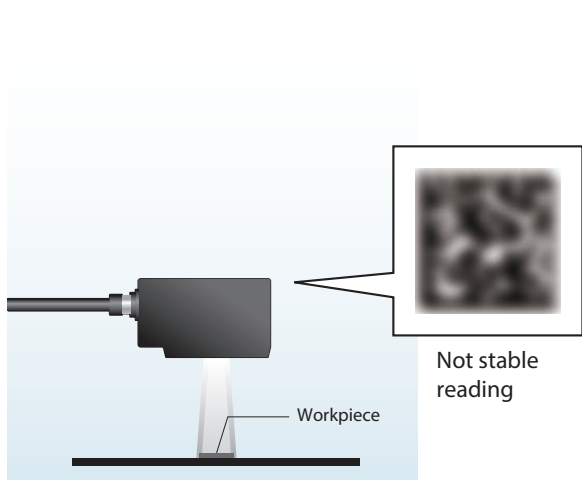
The new V440-F Series offers advanced decode algorithms and improved data output configuration especially for Matrix sorting. The V440-F expands on the strength of V430-F platform with high resolution sensor and C-mount lens for wider configuration of WD & FOV.

Refer to the V440-F series datasheet (Cat. No. Q342) for details.

### 5 M pixel with C mount lens powerful for your small code reading

Not many code reader supplier offers larger than 3 Mpix line up. This results in using complex vision system with higher resolution camera to read small code.

V440-F offers better imaging by its 5 M resolution with telecentric lens.



## 5-Megapixel C-Mount Code Reader V440-F

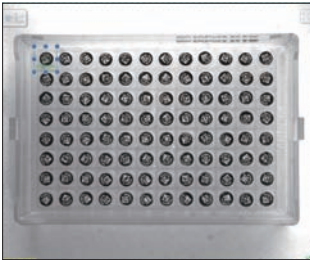
### Intuitive easy multi-code reading setting

Matrix mode

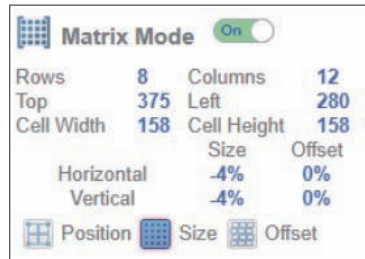
NEW

Easy to set up to 400 region of interest just 2 steps!

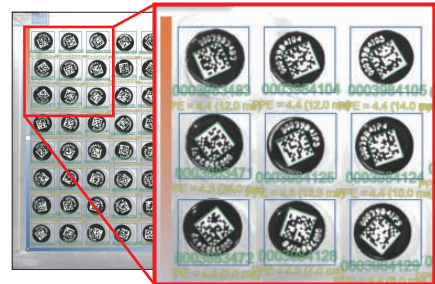
Step.1 Select region



Step.2 Choose your matrix



Setting complete!



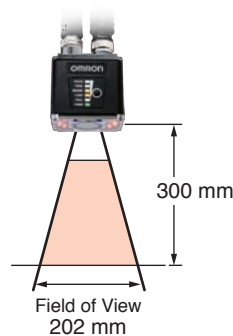
### Compact size with long distance solution leads to you easy to integrate with robot assembly solution

Compact design with POE

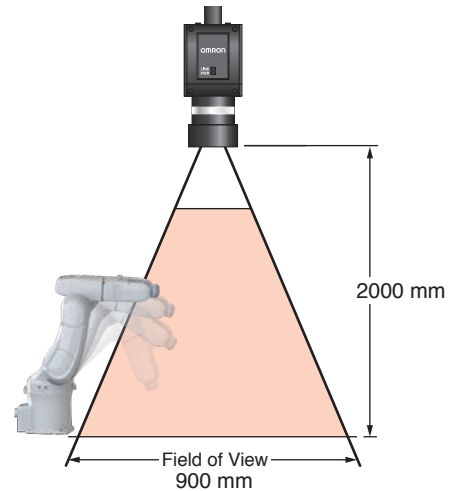


Long distance solution

V430-F



V440-F (Example of using SV-1614H lens)



## Ordering Information

### Reader Models

Type	Model
V440-F, No Optics, 5 MP, Mono, No Light, Plus Mode *1	V440-FXXX50M-NNP
V440-F, No Optics, 5 MP, Mono, No Light, X-Mode *2	V440-FXXX50M-NNX

Note 1: V440-F readers are sold without lenses, lights, cables, or mounting. All of these items can be found in later sections of this datasheet.

Note 2: The V440-F uses all the same cables and interconnect accessories as the MicroHAWK V430-F, with the exception of the M12 Ethernet cables. The V440-F uses standard Ethernet cables. High-Flex TPE cables and Robot Ethernet cables are shown later in this datasheet

\*1. Plus Mode is suitable for high contrast codes such as labels.

\*2. X-Mode is suitable for low print grade codes and DPM.

### Mounting Options

Type	Model
¼-20 Reader Mounting Block Kit (V440-F series only)	V440-AM0

### C-Mount Lens Options

Type	Model
C-Mount Lens	Refer to the V440-F series datasheet (Cat. No. Q342) for details.

## 5-Megapixel C-Mount Code Reader V440-F

## Cables

## General Wiring Options

Category	Length / Spec	Model
Standard Ethernet Cables - Industrial High-Flex GigE Ethernet Cables with Jack Screws and RJ45 Connector *1	2 Meters	98-000133-01
	5 Meters	98-000134-01
	7 Meters	98-000134-02
Reader to QX-1 Interconnect Cables M12 Socket to M12 Plug QX-1 is used as breakout module for common IO signals and power.	1 Meter	V430-WQ-1M
M12 Socket to M12 Plug, with Power Filter	300 mm	V430-WQF-1M
Reader to QX-1 Interconnect Cables M12 Socket to M12 Plug QX-1 is used as breakout module for common IO signals and power.	3 Meters	V430-WQ-3M
	5 Meters	V430-WQ-5M
QX-1 M12 to Smart Light Power and Strobe Control Cables M12 Plug on QX-1 to 5 Pin Socket on Light	3 Meters – Continuous Power	61-000204-01
	3 Meters – Strobe Control	61-000218-01
Y Cable, Reader/Power and Smart Light Power (Continuous On)	1 Meter	61-9000135-01
Y Cable, Reader/Power and Smart Light Strobe Control	1 Meter	61-9000137-01
M12 to Flying Leads Cable, Straight Power, IO, RS-232, USB	3 Meters	V430-W8-3M
M12 to Flying Leads Cable, with Power Filter		V430-W8F-3M
M12 to Flying Leads Cable, Straight Power, IO, RS-232, USB	5 Meters	V430-W8-5M
		V430-W8F-5M
M12 to RS-232 Breakout	1 Meter	V430-WR-1M
	3 Meters	V430-WR-3M
Reader to QX-1 Interconnect Cables with RS-232 Breakout	2.7 Meters	V430-WQR-3M
Power Supply, 100 - 240 VAC, +24 VDC, M12 12-Pin Socket	1 Meter US/Euro Plug	97-000012-01
Reader to QX-1 Interconnect Cables with USB Keyboard Wedge Breakout RS-232C cable connecting Omron's CS/CJ/NJ Controller	2.7 Meters	V430-WQK-3M
	2 Meters	V430-WPLC-2M

\*1. Important: Standard Omron FJ-VSG Ethernet cables are available in alternative and longer lengths.

## Lighting Options

## NERLITE Smart Series R-70 and R-100 Ring Lights

Type	Model
R-70, 70 mm RED Ring Light	NER-011660900G *1
R-70, 70 mm WHITE Ring Light	NER-011660910G
R-70, 70 mm BLUE Ring Light	NER-011660920G
R-100, 100 mm RED Ring Light	NER-011661100G *1
R-100, 100 mm WHITE Ring Light	NER-011661110G
R-100, 100 mm BLUE Ring Light	NER-011661120G

\*1. The R-70 and R-100 Red Ring Lights are normally stock lights with short lead times. Blue and White Ring Lights are subject to standard NERLITE lead times. Check on availability before placing order.

## NERLITE Smart Series R-70 and R-100 Ring Light Polarizer Kits

Type	Model
R-70 Smart Series Ring Light Polarizer Kit	98-9000301-01 *1
R-100 Smart Series Ring Light Polarizer Kit	98-9000302-01 *1

\*1. Note: Smart Series Ring Light Polarizer Kits must be used in conjunction with a cross-polarizer on the lens. See lens polarizer section of the datasheet to determine the correct part number to match the filter thread size of the lens.

## NERLITE Smart Series R-70 and R-100 Ring Light Mounting Kits

Type	Model
R-70 Smart Series Ring Light Mounting Kit	V440-AM1 *1
R-100 Smart Series Ring Light Mounting Kit	V440-AM2 *1

\*1. The C-Mount lens nests down inside the light aperture. The R-70 has a 43.4 mm opening. The R-100 has a 69.5 mm opening. Larger diameter lenses may not fit inside the R-70 ring light. Please see light size compatibility chart in the lens tables.

## NERLITE Smart Series R-70 and R-100 Ring Light Specifications, Dimensions, Connections

Size	Description	Wavelength	Current @ 24 V	Strobe Current	Millicandela Continuous	Millicandela Strobe	Model
R-70	70 mm, RED	623 nm	172 mA	1.2 A	349281	3062913	NER-011660900G
	70 mm, WHITE	6700 K	160 mA	850 mA	352205	1739631	NER-011660910G
	70 mm, BLUE	470 nm	160 mA	850 mA	143217	618814	NER-011660920G
R-100	100 mm, RED	623 nm	255 mA	1.7 A	516015	4370388	NER-011661100G
	100 mm, WHITE	6700 K	235 mA	1.1 A	495814	2338577	NER-011661110G
	100 mm, BLUE	470 nm	235 mA	1.1 A	201005	848215	NER-011661120G

## Other Accessories

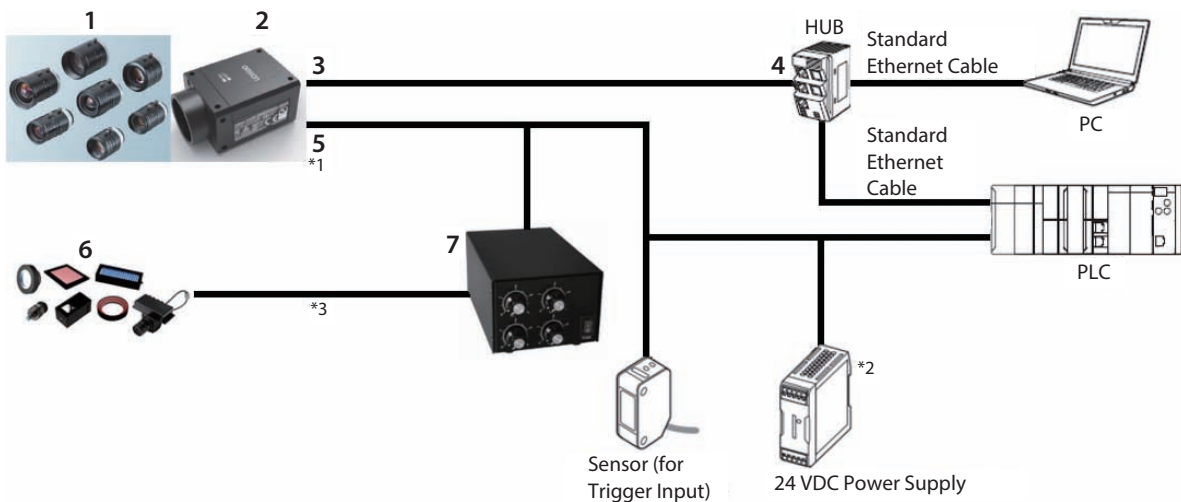
Category	Length / Spec	Model
QX-1 Interconnect Module – Power, Trigger, Smart Light Control Breakout	N/A	98-000103-02
QX-1 Photo Sensor, M12 4-Pin Plug, NPN	2 Meters – Light ON/Dark ON	99-9000016-01
QX-1 Field-Wireable M12 4-Pin Plug for Any Trigger Source or Photo Sensor	Screw Terminals	98-9000239-01



5-Megapixel C-Mount Code Reader V440-F

System Configurations

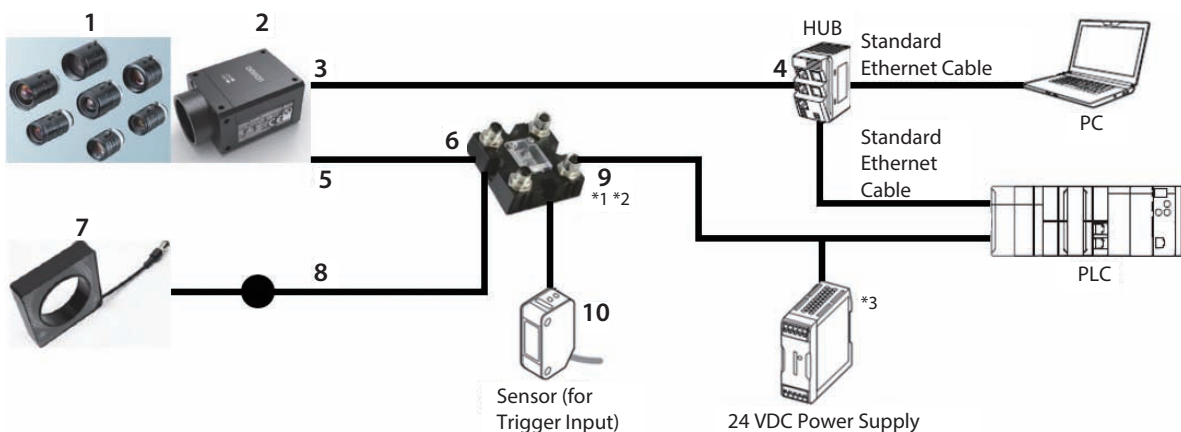
FLV Series or Other External Lighting



No.	Category	Model
1	C-Mount Lens	3Z45-□□, 98-9000□□□-01
2	V440-F C-Mount 5 MP Camera	V440-FXXX50M-NN□
3	Industrial High-Flex GigE Ethernet Cable with Jack Screws and RJ45 Connector	98-00013□-0□
4	PoE (Power over Ethernet) Industrial Switching HUB	Select a cable that can supply power via Ethernet. Example: W451-□□□ Series
5	M12-to-Flying Leads Cable	V430-W8□□□□-□M
6	FLV Lighting	FLV-□
7	Lighting Controller	FLV-ATC□, 3Z45-LT IDGB□

- \*1. The V430-WQ cable (excluding V430-WQR / V430-WQK) can be used as an extension of the V430-W8 cable.
- \*2. A 24VDC power supply is not needed for the V440-F if a PoE switching HUB is used.
- \*3. Any vendor's lighting and power supply can be used with the V440-F. The I/O cable provides strobe signal to light power supply.

NERLITE Smart Series Light with QX-1



No.	Category	Model
1	C-Mount Lens	3Z45-□□, 98-9000□□□-01
2	V440-F C-Mount 5 MP Camera	V440-FXXX50M-NN□
3	Industrial High-Flex GigE Ethernet Cable with Jack Screws and RJ45 Connector	98-00013□-0□
4	PoE (Power over Ethernet) Industrial Switching HUB	Select a cable that can supply power via Ethernet. Example: W451-□□□ Series
5	Reader-to-QX-1 Interconnect Cable	V430-WQ-1M
6	QX-1 Interface Device	98-000103-02
7	NERLITE Smart Series R-70 or R-100 Ring Light	NER-01166□□□□G
8	Integrated Light Cable	61-0002□□-01
9	M12-to-Flying Leads Cable	V430-W8□□□□-□M
10	QX-1 Photo Sensor	98-9000016-01
	QX-1 Field-Wireable M12 4-Pin Plug for Any Trigger Source or Photo Sensor	98-9000239-01

- \*1. The V430-WQ cable (excluding V430-WQR / V430-WQK) can be used as an extension of the V430-W8 cable.
- \*2. It is possible to connect a 97-000012-01 power supply instead of V430-W8. However, since there is no I/O line, you cannot connect to the sensor or PLC.
- \*3. A 24VDC power supply is not needed for the V440-F if a PoE switching HUB is used.

Multi Code Reader

Handheld Code Reader

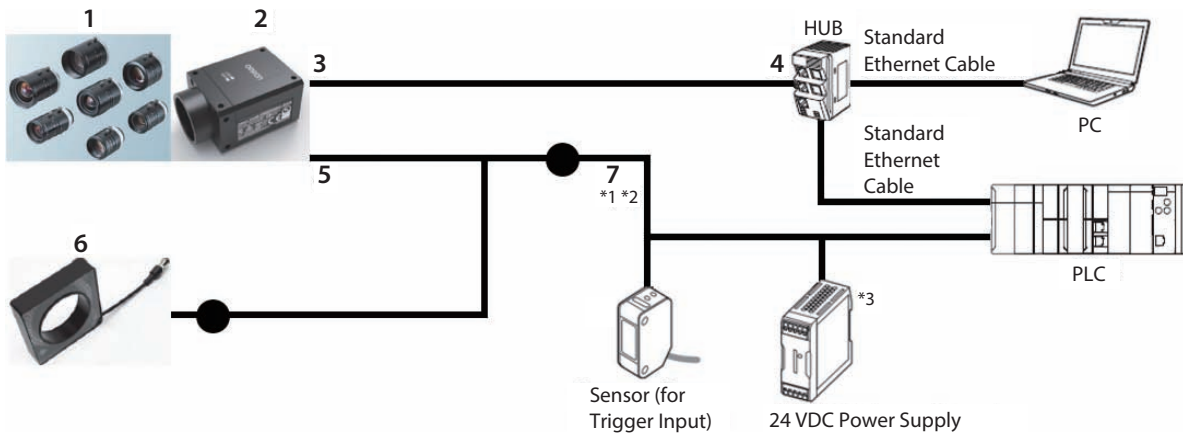
Laser Barcode Reader

Code Verification System



### 5-Megapixel C-Mount Code Reader V440-F

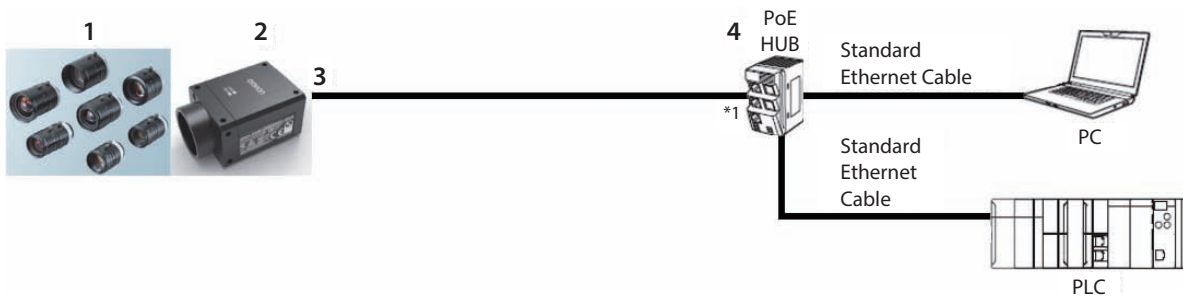
#### NERLITE Smart Series Light without QX-1



No.	Category	Model
1	C-Mount Lens	3Z4S-□□, 98-9000□□□-01
2	V440-F C-Mount 5 MP Camera	V440-FXXX50M-NN□
3	Industrial High-Flex GigE Ethernet Cable with Jack Screws and RJ45 Connector	98-00013□-0□
4	PoE (Power over Ethernet) Industrial Switching HUB	Select a cable that can supply power via Ethernet. Example: W451-□□□ Series
5	Integrated Light Y Cable	61-900013□-01
6	NERLITE Smart Series R-70 or R-100 Ring Light	NER-01166□□□□G
7	M12-to-Flying Leads Cable	V430-W8□□□-□M

\*1. The V430-WQ cable (excluding V430-WQR / V430-WQK) can be used as an extension of the V430-W8 cable.  
 \*2. It is possible to connect a 97-000012-01 power supply instead of V430-W8. However, since there is no I/O line, you cannot connect to the sensor or PLC.  
 \*3. A 24VDC power supply is not needed for V440-F if a PoE switching HUB is used.

#### Minimum Power over Ethernet (PoE) Configuration



No.	Category	Model
1	C-Mount Lens	3Z4S-□□, 98-9000□□□-01
2	V440-F C-Mount 5 MP Camera	V440-FXXX50M-NN□
3	Industrial High-Flex GigE Ethernet Cable with Jack Screws and RJ45 Connector	98-00013□-0□
4	PoE (Power over Ethernet) HUB	Select a cable that can supply power via Ethernet.

\*1. A 24VDC power supply is not needed for the V440-F if a PoE switching HUB is used.

Multi Code Reader

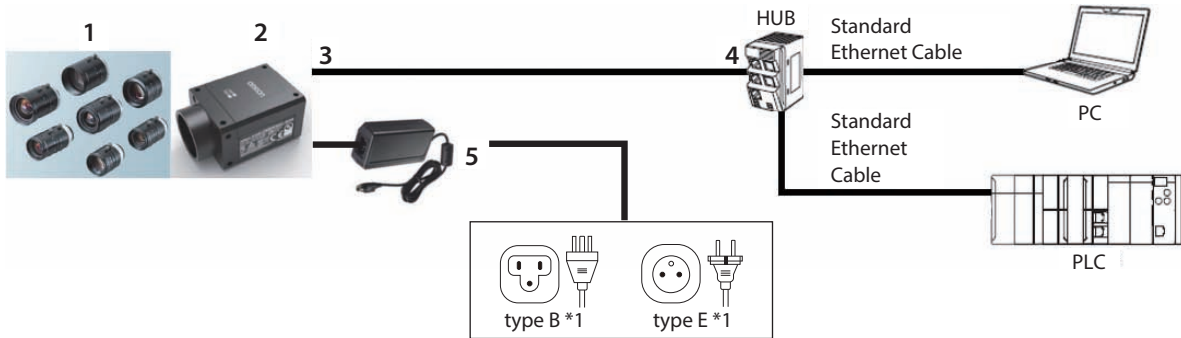
Handheld Code Reader

Laser Barcode Reader

Code Verification System

## 5-Megapixel C-Mount Code Reader V440-F

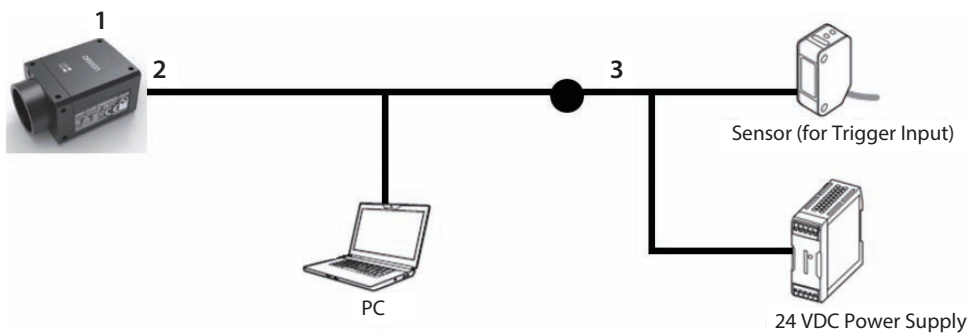
### Minimum External Power Configuration



No.	Category	Model
1	C-Mount Lens	3Z4S-□□, 98-9000□□□-01
2	V440-F C-Mount 5 MP Camera	V440-FXXX50M-NN□
3	Industrial High-Flex GigE Ethernet Cable with Jack Screws and RJ45 Connector	98-00013□-0□
4	Industrial Switching HUB	Example: W4S1 Series
5	Power Supply, 100-240VAC, +24VDC, M12 12-Pin Socket	97-000012-01

\*1. There are many types of outlet plugs for the power supply. Select a suitable plug type for your environment. (Example: type B for Japan, type E for Europe)

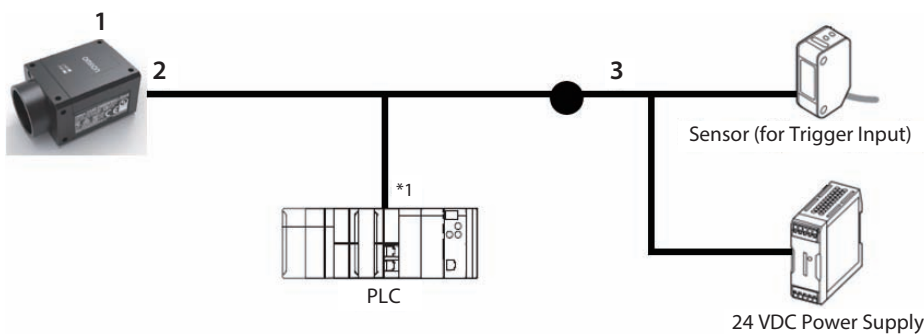
### USB Configuration



No.	Category	Model
1	V440-F C-Mount 5 MP Camera	V440-FXXX50M-NN□
2	Reader-to-QX-1 Interconnect Cable with USB Keyboard Wedge Breakout	V430-WQK-3M *1
3	M12-to-Flying Leads Cable	V430-W8□□□-□M

\*1. Insert the V430-WQK-3M cable between the V440-F and the V430-W8□□□-□M cable.

### RS-232C Configuration



No.	Category	Model
1	V440-F C-Mount 5 MP Camera	V440-FXXX50M-NN□
2	Reader-to-QX-1 Interconnect Cable with RS-232 Breakout	V430-WQR-3M *2
3	M12-to-Flying Leads Cable	V430-W8□□□-□M
4	RS-232C cable connecting Omron's CS/CJ/NJ Controller	V430-WPLC-2M

\*1. The RS-232C cable is required to connect Omron's CS/CJ/NJ Controller. No additional RS-232C cable is required to connect Omron's NX Machine Automation Controller.

\*2. Insert the V430-WQR-3M cable between the V440-F and the V430-W8 cable.

## 5-Megapixel C-Mount Code Reader V440-F

## Ratings and Specifications

Symbologies *1	1D Symbologies	Code 39, Code 128, BC412, Interleaved 2 of 5, UPC/EAN, Codabar, Code 93, Pharmacoce, PLANET, Postnet, Japanese Post, Australian Post, Royal Mail, Intelligent Mail, KIX
	2D Symbologies	Data Matrix (ECC 0-200), QR Code, Micro QR Code, Aztec Code, DotCode, DMRE
	Stacked Symbologies	PDF417, MicroPDF417, GS1 Databar (Composite and Stacked)
Reading Performance *2	Number of Reading Digits	No Upper Limit (depending on bar width and reading distance)
	Reading Distance / Field of View	Based on Lens Selection and Code Size
	Pitch Angle ( $\alpha$ ) *3	$\pm 30^\circ$
	Skew Angle ( $\beta$ ) *3	$\pm 30^\circ$
	Tilt Angle ( $\gamma$ ) *3	$\pm 180^\circ$
Image	Resolution, Pixel Size	2464 (H) x 2056 (V) – 3.45 $\mu\text{m}$ Pixel Size
	Color / Monochrome	Monochrome CMOS
	Shutter	Global Shutter
	Frames per Second	35 FPS for 5 MP
	Exposure	16 $\mu\text{s}$ to 400 msec
Image Logging		FTP
Trigger		External Trigger (Edge or Level), Communication Trigger (Ethernet, RS-232C)
Trigger to Strobe Latency + Jitter		320 $\mu\text{s}$ + 65 $\mu\text{s}$
I/O Specifications	Input Signals	Trigger Input, New Master, and Default – Bi-Directional Inputs, Optoisolated, 4.5 – 28 V rated (10 mA @ 28 VDC)
	Output Signals	3 Signals: Bi-Directional, Optoisolated, 1 – 28 V rated, (ICE < 100 mA at 24 VDC, current limited by user)
Communication	Connectivity	RS-232C, Ethernet TCP/IP, EtherNet/IP™, PROFINET
	Ethernet Specifications	1000BASE-T
Indicator LEDs		LINK (Amber), PWR (Green)
Power Supply Voltage		Power over Ethernet (IEEE 802.3af) / 24 VDC +/- 20%, External Input via IO *4
Current Consumption		PoE (44-57 VDC): 0.10 A or 24 VDC: 0.15 A
Weight	Main Body Only	Approx. 103.4 g
	Packaging Weight	Approx. 219.1 g
Dimensions		40 mm (W) x 61 mm (D) x 30 mm (H) Note: Depth measurement excludes connector
Accessories		ReadMeFirst, CE Compliance Sheet, Protocol Support Table
Materials		Aluminum Diecast, Alumite (Black)
Software		WebLink 3.0
Environmental / Immunity *5	Operating Temperature	0 to 40°C
	Storage Temperature	-25 to 65°C (No Icing or Condensation)
	Ambient Atmosphere	No Corrosive Gases
	Humidity (Operating and Storage)	5% to 95% (Non-Condensing)
	Destructive Vibration Resistance	Oscillation Frequency: 10 to 150Hz, Half Amplitude: 0.35 mm, Vibration Direction: X/Y/Z, Sweep Time: 8 Minutes / Count, Sweep Count: 10 Times
	Drop Specification	Impact Force: 150 m/s <sup>2</sup> , Test Direction: 6 Directions, 3 Times Each (Up / Down, Front / Behind, Left / Right)
Water Resistance Rating		IP40 per IEC 60529
EMC / Safety		FCC 47 CFR part 15 Subpart B, ICES-003, EN 55032, EN 55035, AS/NZS CISPR32, CNS 13438, KN32, KN35, UL 62368-1, UL 60950-1 FCC, UL, CE, UKCA, BIS, RCM, KC, EAC *6

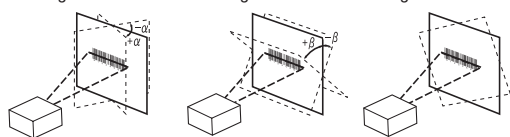
\*1. These symbologies are supported based on Omron's read capability validation standard. Omron recommends that validation be performed for each application.

\*2. Unless otherwise specified, reading performance is defined with center of field of view, angle  $R=\infty$ .

\*3. Pitch angle

Skew angle

Tilt angle



\*4. Code reader operates External Input at 24 VDC when supplied at the same time as PoE.

\*5. In an electrically noisy environment, use only the V440-F in combination with a noise filter cable (V430-W□F-□M) to ensure proper operation.

\*6. FCC = United States

UL = United States / Canada

CE = European Union

UKCA = Great Britain (England / Wales / Scotland)

BIS = India

RCM = Australia / New Zealand

KC = South Korea

EAC = Russia



# Handheld DPM Code Reader V450-H series

## “Ultra-Rugged” Handheld DPM Code Reader



Alcohol-disinfectable\*1

The V450-H Ultra-Rugged Handheld DPM Code Reader is Omron Microscan’s newest generation of industrial Direct Part Mark (DPM) handheld code reader, purpose built from the ground up to set new standards for durability and performance. The alcohol-disinfectable body makes the code readers safe for use in production sites where infection measures are required.

Our unique reading algorithms “X-Mode” allow you to also read the DPM codes on low-contrast materials and curved materials.

### Outstanding ruggedness



Its tested durability and environmental immunity ensure reliability.

#### Durability

- Drop Test: Multiple 2.4 m drops to concrete (Wireless type)
- Tumble Test: 5,000 tumbles at 1 m

#### Environmental immunity

- IP Rating: IP65/IP67
- Industrial Fluid Resistance
  - Motor/Engine Oil
  - Automatic Transmission Fluid (ATF)
  - Continuously Variable Transmission Fluid (CVT)
  - Industrial De-Greaser
  - Brake Fluid (DOT4)

### Consistent reading of DPM X-mode decode algorithms

#### Reliable reading despite inconsistent print quality

The V450-H Series includes our unique and robust X-Mode decoding algorithms. Expanded X-Mode decoding algorithms can reliably read distorted and damaged codes by correcting variations in print quality.

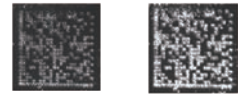
#### Damaged Mode

Corrects damaged 2D codes.



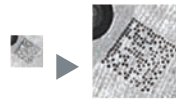
#### Morphology

Enhances the contrast of cells.



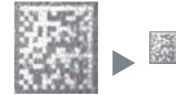
#### Scale Up

Scales up the captured image to the ideal size.



#### Scale Down

Scales down the captured image to the ideal size.



### Consistent reading of DataMatrix of 3 mm square\*2



3 mm



Indirect illumination: outer edge part is lit



Direct illumination: center part is lit

In addition to high resolution, two patterns of direct/indirect illumination appropriate for DPM codes are adopted, allowing consistent reading of the DPM codes marked on a variety of material surfaces.

### V450-H: Available Codes



For applicable codes, see Ratings and Specifications.

\*1. Use isopropyl alcohol 70%.

\*2. DataMatrix: 0.1016 mm at minimum resolution

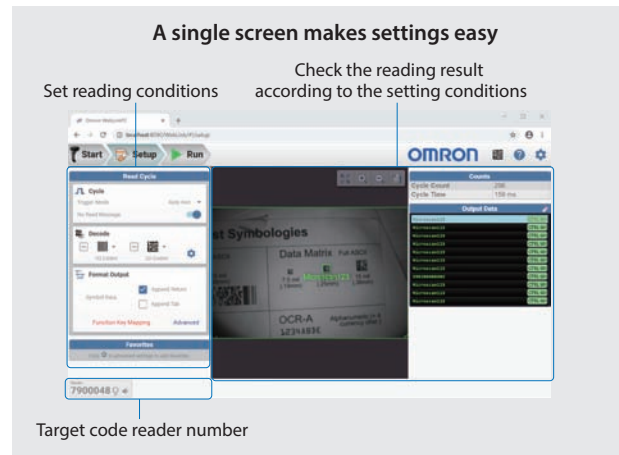
Handheld DPM Code Reader V450-H series

Code reader loss-prevention function (in cradle for wireless model)



For the wireless type, the code reader can emit a sound when the paging button on the cradle is pressed. The code reader can be easily located by the sound, thereby preventing misplacement or loss.

Easy setup with WebLinkPC



Easy setup with PC setup tool WebLinkPC. Setting most commonly used reading conditions and checking reading result are possible on a single screen, providing efficient setting.

Notification with a beep sound, a display indicator, and vibration

In addition to a beeper, visual and vibrating indicators provide silent confirmation of successful reads for noisy or sensitive environments.

When using the HS-360 series

HS-360X series have been discontinued at June 2023.

Check the table below and use the V450-H series which is an upward compatible product of the HS-360X series.

	Old model	New model
Code readers	HDS-3608-0001	V450-HDS3608-0001
	HDS-3678-0001	V450-HDS3678-0001

## Handheld DPM Code Reader V450-H series

## Ordering Information

## Code Reader

Type	Model
V450-H, Handheld Reader DPM, Wired	V450-HDS3608-0001
V450-H, Handheld Reader DPM, Wireless	V450-HDS3678-0001

## Accessories

Type	Model
Battery, Spare, V450-H / HS-360X	98-9000224-01
Power Supply, Cradle, V450-H / HS-360X	98-9000181-01
Power Supply, 4-Slot Battery Charger, V450-H / HS-360X	98-9000182-01
4-Slot Battery Charger, V450-H / HS-360X	98-9000185-01
Stand, Intelligent, V450-H / HS-360X	98-9000186-01
AC Power Cable, 1.8M, Japan, C13 Connector	12-9001046-01
AC Power Cable, 1.8M, UK, C13 Connector	12-9000961-01
AC Power Cable, 1.8M, EU, C13 Connector	12-9000960-01
AC Power Cable, 1.8M, U.S., C13 Connector	12-9000959-01
AC Power Cable, 1.8M, China, C13 Connector	12-9000962-01
Cable, RS232, DB9, Female, 2M, Straight, V450-H / HS-360X	12-9000953-01
Cable, USB, Shielded, 2M, Ext 12V, V450-H / HS-360X	12-9000942-01
Cable, USB, Shielded, 4.6M, Ext 12V, V450-H / HS-360X	12-9000943-01
Cable, USB, Shielded, 2M, V450-H / HS-360X	12-9000946-01
Cable, USB, Shielded, 4.6M, V450-H / HS-360X	12-9000947-01
Cable, Adapter, Omron CS/CJ/NJ PLC	V430-WPLC-2M
Cradle, Charger, Sealed, V450-H / HS-360X	12-9000937-01

WebLink<sub>PC</sub>

To download WebLink<sub>PC</sub>, go to [www.automation.omron.com/weblinkpc](http://www.automation.omron.com/weblinkpc).  
The V450-H requires WebLink<sub>PC</sub> 3.0.0 or later.

Handheld DPM Code Reader V450-H series

**Ratings and Specifications**

Item	Description
<b>Physical Characteristics</b>	
V450-H Wireless Reader Dimensions	7.3 in. H x 3.0 in. W x 5.6 in. D 186 mm H x 77 mm W x 143 mm D
V450-H Wired Reader Dimensions	7.3 in. H x 3.0 in. W x 5.2 in. D 185 mm H x 77 mm W x 132 mm D
V450-H Wireless Reader Weight (with Battery)	Approximately 14.8 oz. / 402 g
V450-H Wired Reader Weight (without Cable)	Approximately 10.72 oz. / 304 g
Power	5 VDC +/- 10% @ 360 mA (RMS typical)
Color	Black Grey
<b>Performance Characteristics</b>	
Light Source	Aiming Pattern: 655 nm Laser / Illumination: Warm white and red 634 nm LEDs
Field of View (Horizontal x Vertical)	31° H x 23° V nominal
Skew Tolerance	+/- 60°
Pitch Tolerance	+/- 60°
Roll Tolerance	0° - 360°
<b>Symbologies</b>	
1D	UPC/EAN, UPC/EAN with supplementals, Bookland EAN, ISSN, UCC Coupon Extended Code, Code 128, GS1-128, ISBT 128, ISBT Concatenation, Code 39, Code 39 Full ASCII, Trioptic Code 39, Code 32, Code 93, Code 11, Interleaved 2 of 5, Discrete 2 of 5, Codabar, MSI, Chinese 2 of 5, Matrix 2 of 5, Korean 3 of 5, GS1 DataBar variants
2D	PDF417, Micro PDF417, Composite Codes, TLC-39, Aztec, Data Matrix, QR Code, Micro QR, Han Xin, GS1-QR, GS1-DM, DotCode (Available with X-Mode Only)
Postal	US Postnet, US Planet, UK Postal, Japan Post, Australia Post, Royal Mail 4 State Customer, UPU 4 State Postal FICS (Post US4), USPS 4-State Postal (Post US3)
Typical Working Distance	<b>See Read Ranges</b>
Interfaces Supported	USB 1.1, RS-232 The reader supports the following protocols over USB 1.1: HID Keyboard (default mode), SNAPI, COM Port Emulation, USB CDC
Minimum Resolution	Code 39: 3 mil
	PDF417: 4 mil
	Data Matrix: 4 mil
<b>User Environment</b>	
V450-H Wireless reader Operating Temperature	-4° F to 122° F (-20° C to 50° C)
V450-H Wired reader Operating Temperature	-22° F to 122° F (-30° C to 50° C)
Storage Temperature	-40° F to 158° F (-40° C to 70° C)
Humidity	5% to 95% RH, non-condensing
ESD	20 kV air discharge; 10 kV contact discharge
V450-H Wireless reader Drop Specifications	Withstands multiple 8 ft. / 2.4 m drops to concrete at room temperature
V450-H Wired reader Drop Specifications	Withstands multiple 6.5 ft. / 2.0 m drops to concrete at -30° C to 50° C
Environmental Sealing	Reader: IP65 and IP67; Cradle: IP65
Ambient Light Immunity	0 to 10,037 foot-candles
	0 to 108,000 lux
<b>Accessories</b>	
V450-H Wired reader Hands-Free Option	V450-H Stand
Power Supplies	Power supplies are available for applications that do not supply power over the host cable.
<b>Regulatory Compliance</b>	
LED Safety Standard	IEC 62471 Exempt Risk Group
EMC Standards	EN 55024, EN 55032, FCC Part 15, Subpart B (Class B)
Safety Standards	EN 60950-1
Certifications	RCM, EAC, BSMI, CE, cULus, UKCA



## Handheld DPM Code Reader V450-H series

**Cradle (12-9000937-01) Technical Specifications**

Item	Description
Power Requirements for Host-Powered	Min 4.5 - Max 5.5
Power Requirements for External Power Supply	Min 11.4 - Max 12.6
Typical Current Draw when Not Charging	80 mA @ 5 V; 30 mA @ 12 V
Typical Current Draw in Full Charging Mode	1200 mA @ 5 V (BC 1.2), 475 mA (non-BC 1.2); 700 mA @ 12 V
Typical Current Draw in Safe Charging Mode	400 mA @ 5 V; 200 mA @ 12 V
Interfaces Supported	USB 1.1, RS-232
Operating Temperature	-4° to 122° F (-20° to 50° C)
Storage Temperature	-40° to 158° F (-40° to 70° C)
Charging Temperature	32° to 104° F (0° to 40° C) nominal, 41° to 95° F (5° to 35° C) ideal
Humidity	5% to 95% (non-condensing)
ESD	25 kV air discharge 10 kV contact discharge
Weight	13.7 oz (390 grams)
Dimensions	W 99.8 x L 229.4 x H 82.6 mm
Radio	Bluetooth®, Up to 100 meters / 300 ft. in open air range/environment Serial Port and HID Profiles 2.402 to 2.480 GHz Adaptive Frequency Hopping (co-existence with 802.11 wireless networks) 3 Mbit/s (2.1 Mbit/s) for Classic Bluetooth® 1 Mbit/s (0.27 Mbit/s) for Low Energy
<b>Regulatory Compliance</b>	
EMC Standards	EN 300 328 V2.1.1, EN 301 489-1 V2.1.1, EN 55024, EN 55032, FCC Part 15, Subpart B (Class B)
Safety Standards	EN 60950-1
Certifications	RCM, KC, EAC, CE, cULus, BIS, NCC

**Battery Charger (98-9000185-01) Regulatory Compliance**

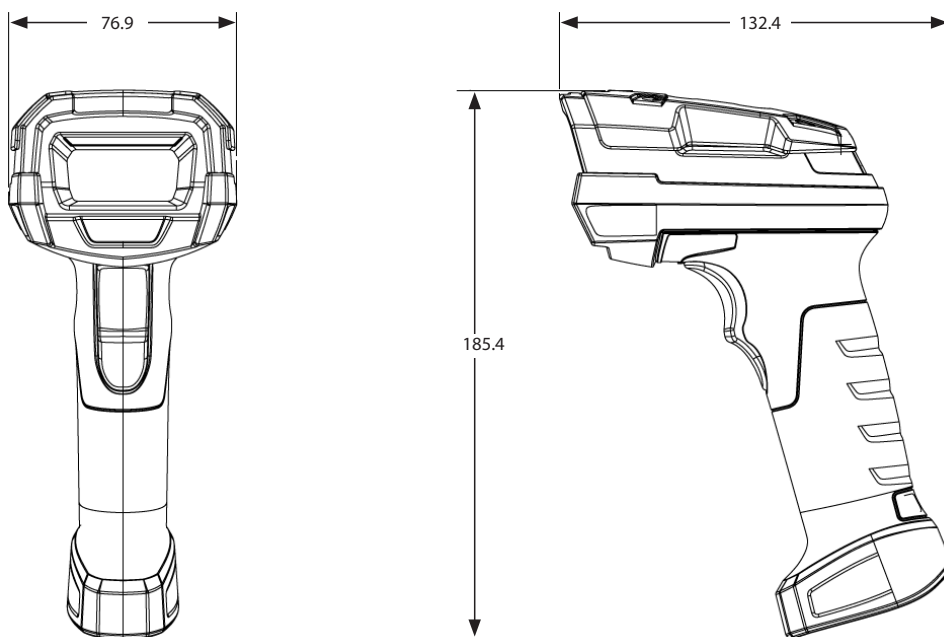
Item	Description
EMC Standards	EN 55024, EN55032, FCC Part 15, Subpart B (Class B)
Safety Standards	EN 60950-1
Certifications	RCM, KC, EAC, CE, cULus

Handheld DPM Code Reader V450-H series

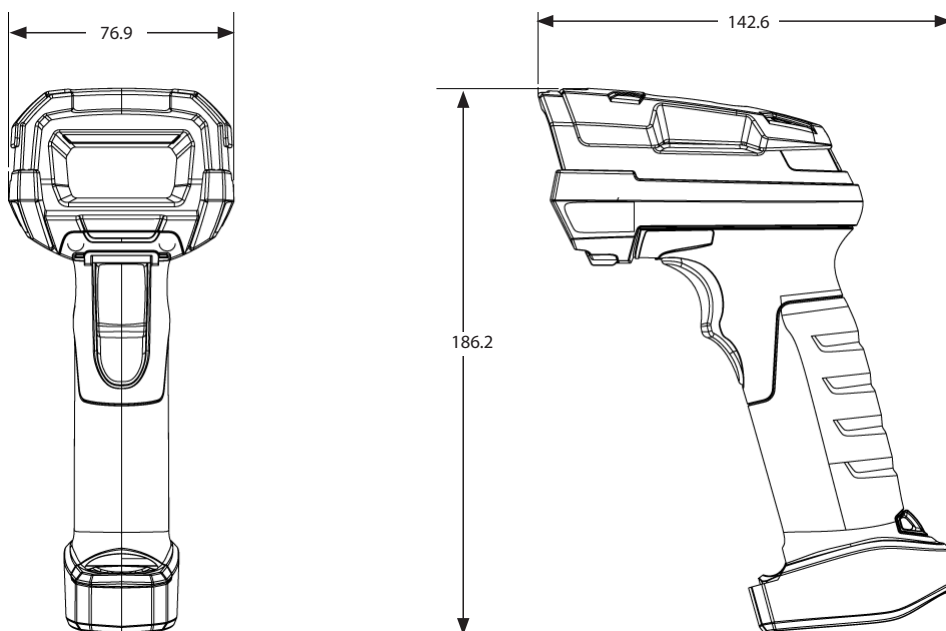
Dimensions

(Unit: mm)

Wired



Wireless



Multi Code Reader

Handheld Code Reader

Laser Barcode Reader

Code Verification System

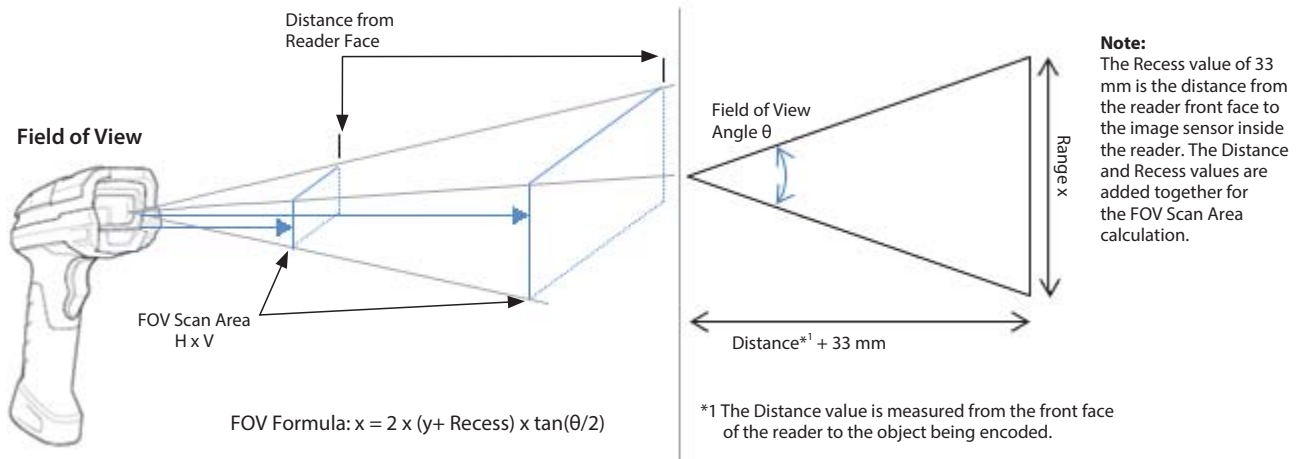
Handheld DPM Code Reader V450-H series

V450-H Read Ranges

Symbology	Resolution	Inside Edge	Outside Edge
Code 39	3.0 mil	0.2 in. (5.0 mm)	2.8 in. (71.0 mm)
PDF417	5.0 mil	0.2 in. (5.0 mm)	2.8 in. (71.0 mm)
	6.6 mil	0.2 in. (5.0 mm)*	3.2 in. (81.0 mm)
Data Matrix	5.0 mil	0.4 in. (10.0 mm)	2.5 in. (63.0 mm)
	10.0 mil	0.0 in. (0.0 mm)	3.4 in. (86.0 mm)
QR Code	5.0 mil	0.4 in. (10.0 mm)	2.5 in. (63.0 mm)
	10.0 mil	0.0 in. (0.0 mm)	3.4 in. (86.0 mm)
UPC	13.0 mil	1.0 in. (25.0 mm)*	5.8 in. (147.0 mm)

\* Field of View and barcode width limited. Read ranges measured with Decoder Effort Level 1. Barcodes printed on photographic paper. Thirty (30) foot-candles ambient light conditions during testing.

Imager Field of View



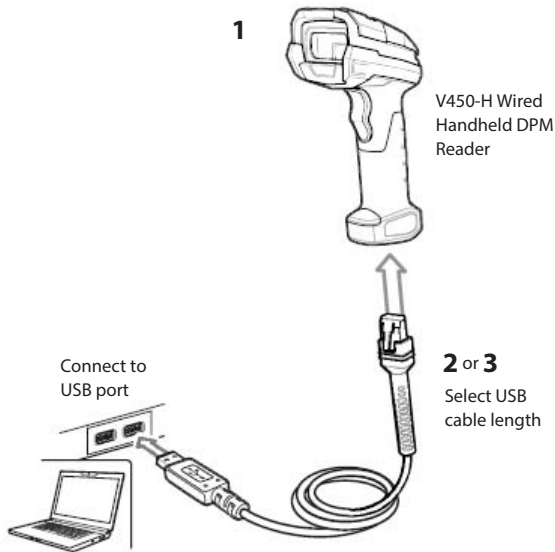
V450-H: Image Field of View in degrees = 31 (horizontal) x 23 (vertical)

y (mm)	y + Recess	θ	Range x (mm)	FOV Scan Area H x V (mm)	Distance from Reader Face (mm)	FOV Scan Area H x V (in)	Distance from Reader Face (in)
71	104	31	58	58 x 42	71	2.3 x 1.7	2.8
71	104	23	42	-	-	-	-
147	180	31	100	100 x 73	147	3.9 x 2.9	5.8
147	180	23	73	-	-	-	-

Handheld DPM Code Reader V450-H series

Configurations

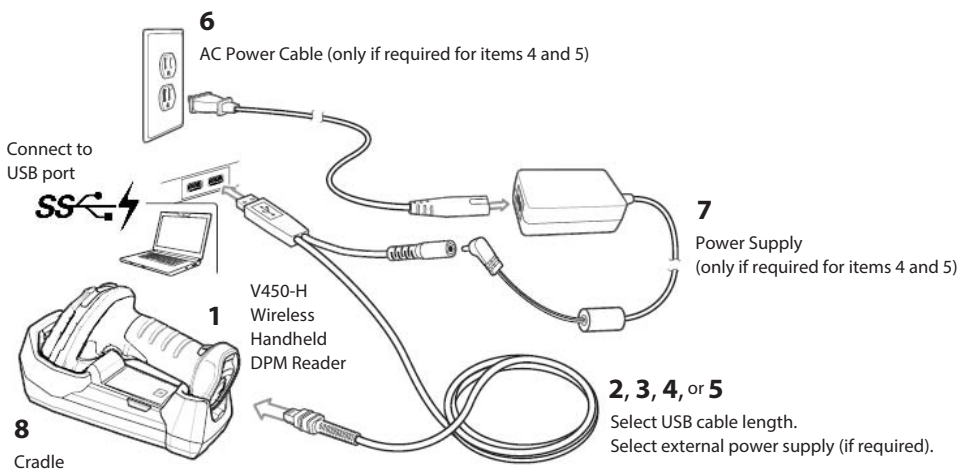
Wired USB



**Note:** This connection scheme is also used to connect the V450-H Handheld Code Reader to an Omron NA-Series Controller.

No	Description	Model
1	V450-H Handheld DPM Reader, Wired	V450-HDS3608-0001
2	Cable, USB, Shielded, 2 M, V450-H	12-9000946-01
3	Cable, USB, Shielded, 4.6 M, V450-H	12-9000947-01

Wireless USB



**Note:** This connection scheme is also used to connect the V450-H Handheld Code Reader to an Omron NA-Series Controller.

No	Description	Model
1	V450-H Handheld DPM Reader, Wireless	V450-HDS3678-0001
2	Cable, USB, Shielded, 2 M, V450-H *1	12-9000946-01
3	Cable, USB, Shielded, 4.6 M, V450-H *1	12-9000947-01
4	Cable, USB, Shielded, 2 M, Ext. 12V, V450-H *1	12-9000942-01
5	Cable, USB, Shielded, 4.6 M, Ext. 12V, V450-H *1	12-9000943-01
6	AC Power Cable, 1.8 M, U.S., C13 Connector *2	12-9000959-01
7	Power Supply for Cradle / Charger, V450-H Wireless	98-9000181-01
8	Cradle, Charger, Sealed, V450-H Wireless	12-9000937-01

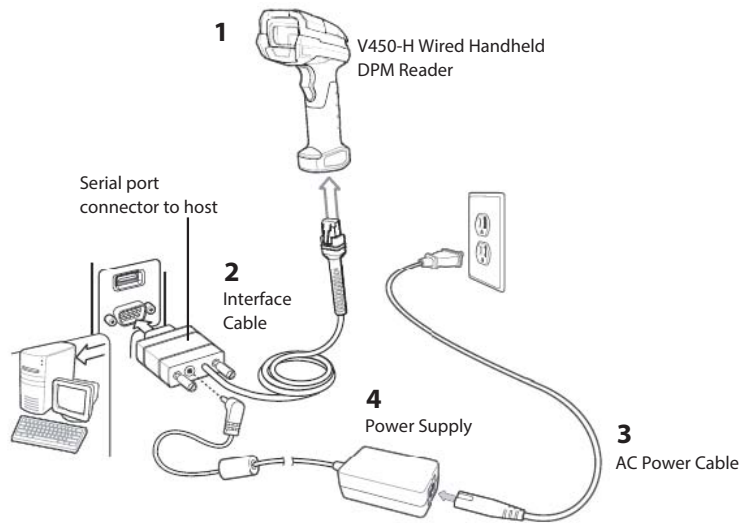
\*1. Charging is faster with external power supply. Time to full charge: up to 10 hours without; only 3 hours with.

\*2. AC Power Cables are available for China, EU, UK, Japan and USA.

## Handheld DPM Code Reader V450-H series

## Configurations

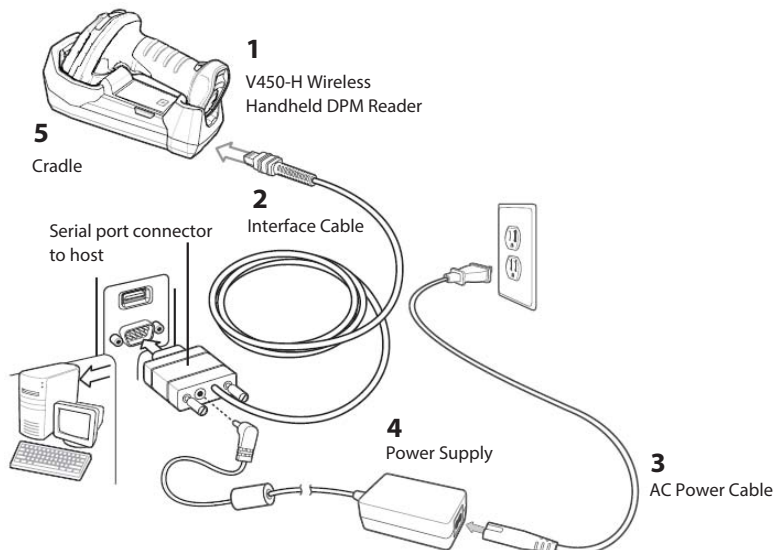
## Wired RS-232



No	Description	Model
1	V450-H Handheld DPM Reader, Wired	V450-HDS3608-0001
2	Cable, RS-232, DB9 Socket, 2 M, Straight, V450-H	12-9000953-01
3	AC Power Cable, 1.8 M, U.S., C13 Connector *1	12-9000959-01
4	Power Supply for Cradle / Charger, V450-H Wired	98-9000181-01

\*1. AC Power Cables are available for China, EU, UK, Japan and USA.

## Wireless RS-232



No	Description	Model
1	V450-H Handheld DPM Reader, Wireless	V450-HDS3678-0001
2	Cable, RS-232, DB9 Socket, 2 M, Straight, V450-H	12-9000953-01
3	AC Power Cable, 1.8 M, U.S., C13 Connector *1	12-9000959-01
4	Power Supply for Cradle / Charger, V450-H Wireless	98-9000181-01
5	Cradle, Charger, Sealed, V450-H Wireless	12-9000937-01

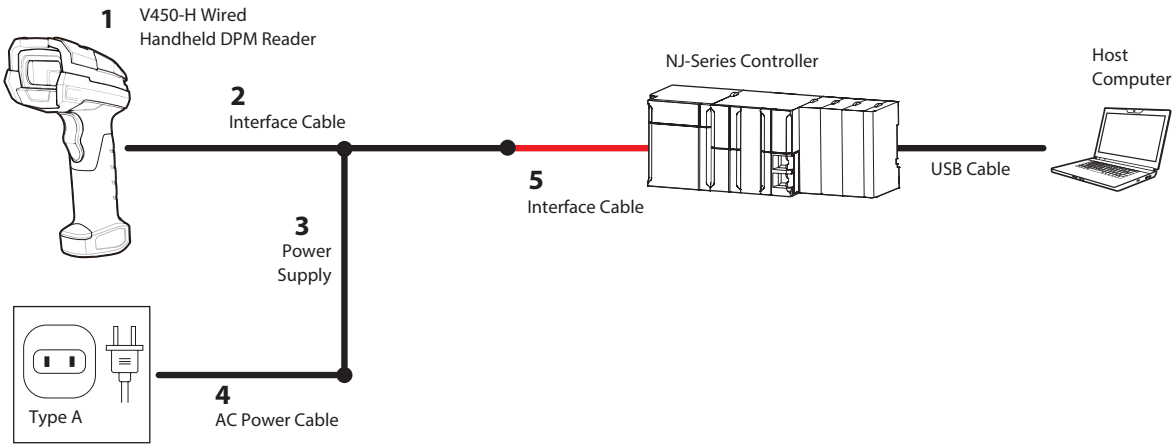
\*1. AC Power Cables are available for China, EU, UK, Japan and USA.

Handheld DPM Code Reader V450-H series

Configurations

With NJ-Series PLC

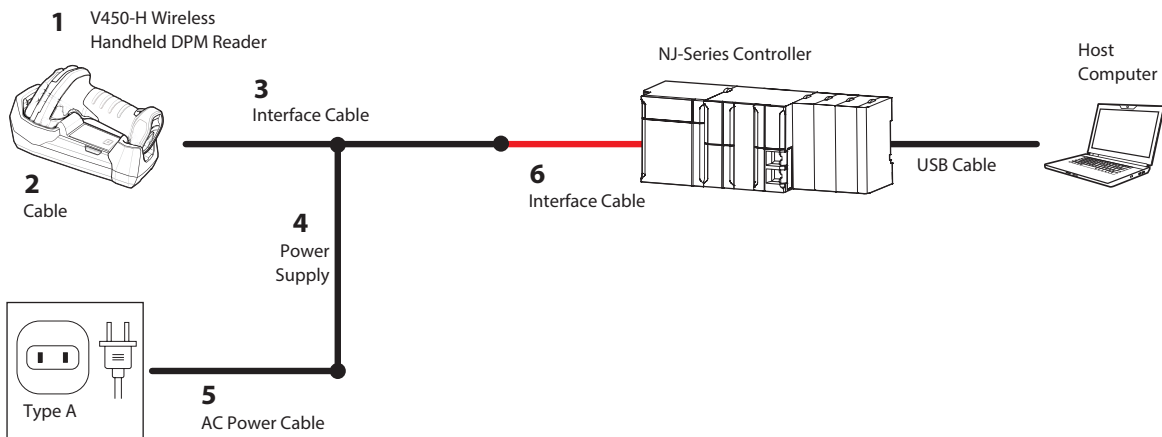
Wired RS-232



No	Description	Model
1	V450-H Handheld DPM Reader, Wired	V450-HDS3608-0001
2	Cable, RS-232, DB9 Socket, 2 M, Straight, V450-H	12-9000953-01
3	Power Supply for Cradle / Charger, V450-H Wired	98-9000181-01
4	AC Power Cable, 1.8 M, U.S., C13 Connector *1	12-9000959-01
5	RS-232C Cable for Omron PLCs (CS/CJ/NJ)	V430-WPLC-2M

\*1. AC Power Cables are available for China, EU, UK, Japan and USA.

Wireless RS-232



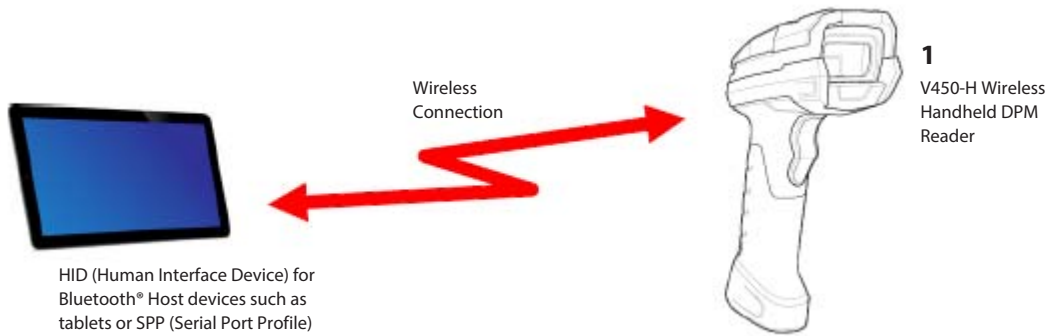
No	Description	Model
1	V450-H Handheld DPM Reader, Wireless	V450-HDS3678-0001
2	Cradle, Charger, Sealed, V450-H Wireless	12-9000937-01
3	Cable, RS-232, DB9 Socket, 2 M, Straight, V450-H	12-9000953-01
4	Power Supply for Cradle / Charger, V450-H Wireless	98-9000181-01
5	AC Power Cable, 1.8 M, U.S., C13 Connector *1	12-9000959-01
6	RS-232C Cable for Omron PLCs (CS/CJ/NJ)	V430-WPLC-2M

\*1. AC Power Cables are available for China, EU, UK, Japan and USA.

Handheld DPM Code Reader V450-H series

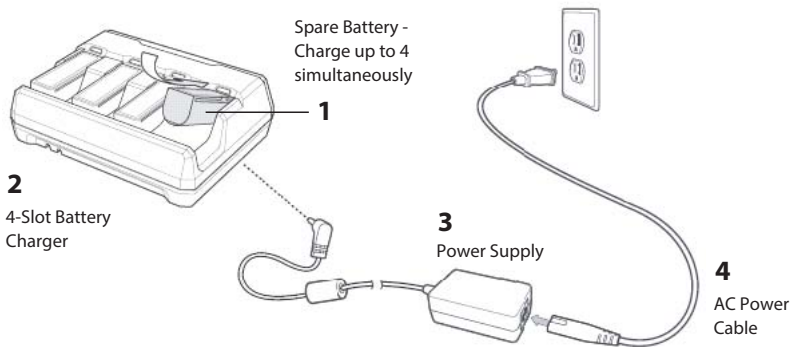
Configurations

Bluetooth®



No	Description	Model
1	V450-H Handheld DPM Reader, Wireless	V450-HDS3678-0001

4-Slot Battery Charger



No	Description	Model
1	Battery, Spare, V450-H Wireless	98-9000224-01
2	4-Slot Battery Charger, V450-H Wireless	98-9000185-01
3	Power Supply for 4-Slot Battery Charger, V450-H Wireless	98-9000182-01
4	AC Power Cable, 1.8 China, C13 Connector	12-9000962-01
	AC Power Cable, 1.8 EU, C13 Connector	12-9000960-01
	AC Power Cable, 1.8 UK, C13 Connector	12-9000961-01
	AC Power Cable, 1.8 Japan, C13 Connector	12-9001046-01
	AC Power Cable, 1.8 U.S., C13 Connector	12-9000959-01

Related Manuals

Man.No.	Model	Manual
Z439 (84-9000362-02)	V410-HDS4608SR, V410-HDS4608XD, V410-HDS4608HC, V450-HDS3608-0001	V410-H and V450-H Handheld Barcode Reader User Manual





## Handheld Code Reader

**V410-H series****Handheld High-performance Code Reader**

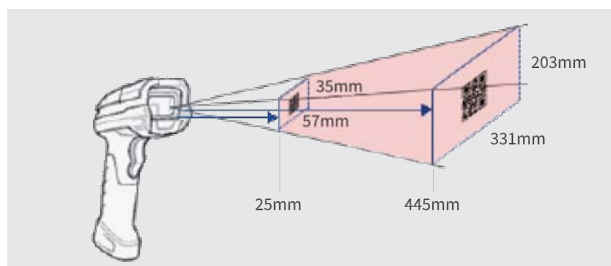
Versatile, powerful decode performance for any application.

The alcohol-disinfectable body makes the code readers safe for use in production sites where infection measures are required.

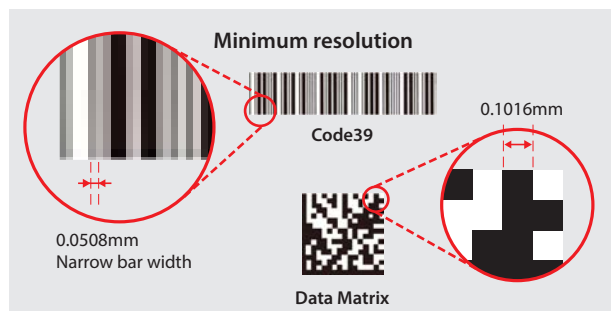
Product lineup includes: SR type, which has a wide reading range for easy alignment of the code reader with a code, XD type capable of consistently reading small codes thanks to high resolution and X-Mode decoding algorithms, and HC type, which is resistant to strong disinfectants used in the medical field.

Alcohol-disinfectable\*1

\*1. Use isopropyl alcohol 70% for XD/SR type. In addition isopropyl alcohol, sodium hypochlorite and hydrogen peroxide solution can be used with HC type.

**Work efficiency improvement****A wide reading view allows alignment easy****SR type**

SR type provides easy alignment of a code reader with a code by its wide reading range and reading distance. Efficient manual code reading is possible.

**The X-Mode equipped****Consistent reading at high resolution for small codes****XD type**

XD type equips with OMRON's unique X-Mode algorithms realizing high DPM (Direct Part Marks) readings. It consistently reads small codes and distorted codes at a high decode rate.

**Effective against infectious diseases****HC type**

HC type can be used with the major disinfecting chemicals used in medical institutions.

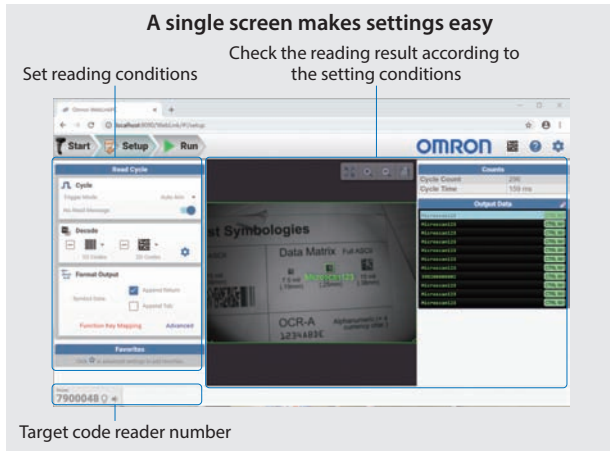
Unlike antibacterial types, which suppress the growth of bacteria, it can be disinfected by chemicals, thus minimizing the risk of infection. It is a safe design that fills the gaps and screw holes where bacteria and viruses are likely to evade disinfection.

Chemical resistance to:	Wipe disinfection
Sodium hypochlorite	OK (can be wiped down)
Isopropyl alcohol	OK (can be wiped down)
Hydrogen peroxide solution	OK (can be wiped down)

Handheld Code Reader V410-H series

Ease of Use - WebLinkPC

SR type / XD type



Easy setup with PC setup tool WebLinkPC. Setting most commonly used reading conditions and checking reading result are possible on a single screen, providing efficient setting.

Notification with a beep sound, a display indicator, and vibration

SR type / XD type

In addition to a beeper, visual and vibrating indicators provide silent confirmation of successful reads for noisy or sensitive environments.

HC type

Day and night 'do-not-disturb' modes for scanner feedback, allowing users to mix and match between a visual (red and green LED), haptic (vibration) and audio (audible "beep" tone).

V410-H: Available Codes



Please see the Ratings and Specifications for a complete list of supported symbologies.

Ordering Information

Code Reader

Type	Model
V410-H XD Handheld Reader, Black Grey, Wired, with X-Mode	V410-HDS4608XD
V410-H SR Handheld Reader, Black Grey, Wired	V410-HDS4608SR
V410-H HC Handheld Reader, White, Wired	V410-HDS4608HC

Accessories

Type	Model
Presentation Stand, V410-H	V410-AS0
Cable Assembly, Style 3 USB, 7 Ft, Mod Plug	V410-WUB-2M
Cable Assembly, RS232, DB9F, TXD-2, 7 Ft, V410-H	V410-WR-2M
Kit, V410-H AC Power Supply 5.2VDC, 1.1A	V410-AC0-1
RS-232C cable connecting Omron's CS/CJ/NJ Controller, 2 meters	V430-WPLC-2M

WebLinkPC

To download WebLinkPC, go to [www.automation.omron.com/weblinkpc](http://www.automation.omron.com/weblinkpc). Use WebLinkPC version.2.0.0 or higher for V410-H.

## Handheld Code Reader V410-H series

## Ratings and Specifications

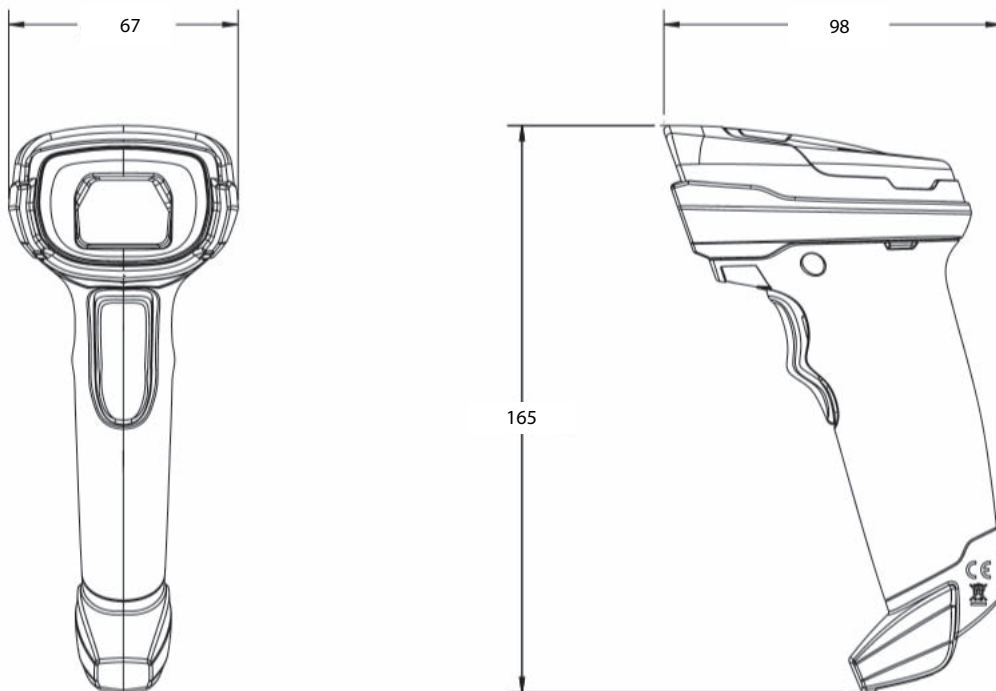
V410-H	XD	SR	HC
Item	Description		
<b>Physical Characteristics</b>			
Dimensions	6.5 in. H x 2.6 in. W x 3.9 in. D 165 mm H x 67 mm W x 98 mm D		
Weight	5.7 oz. / 161.9 g		
Input Voltage Range	4.5 to 5.5 VDC Host Powered; 4.5 to 5.5 VDC External Power Supply		
Operating Current at Nominal Voltage (5.0V)	375 mA (typical)	340 mA (typical)	375 mA (typical)
Standby Current (Idle) at Nominal Voltage (5.0V)	150 mA (typical)		
Color	Black Grey	Black Grey	Healthcare White
Supported Host Interfaces	USB 1.1, RS-232		
USB Certification	USB 1.1 Certified		
Keyboard Support	Supports over 90 international keyboards		
Electronic Article Surveillance		Compatible with Checkpoint EAS deactivation system	
User Indicators	Direct Decode Indicator, Good Decode LEDs, rear view LEDs, beeper (adjustable tone and volume), haptic/vibration	Direct Decode Indicator, Good Decode LEDs, rear view LEDs, beeper (adjustable tone and volume)	Direct Decode Indicator, Good Decode LEDs, rear view LEDs, beeper (adjustable tone and volume), haptic/vibration
<b>Performance Characteristics</b>			
Light Source	Aiming Pattern: circular 528nm true green LED	Aiming Pattern: circular 617nm amber LED	Aiming Pattern: circular 528nm true green LED
Illumination	(2) Warm White LEDs	(2) 660nm Red LEDs	(2) Warm White LEDs
Imager Field of View	34° H x 21.6° V nominal	36.1° H x 22.6° V nominal	35° H x 22° V nominal
Image Sensor	1280 x 800 pixels		
Minimum Print Contrast	15% minimum reflective difference		
Skew Tolerance	+/- 60°		
Pitch Tolerance	+/- 60°		
Roll Tolerance	0° - 360°		
<b>Imaging Characteristics</b>			
Graphics Format Support	Images can be exported as Bitmap, JPEG, or TIFF		
Image Quality	96 PPI on an A4 document		
<b>Environmental</b>			
Operating Temperature	32.0° to 122.0° F / 0.0° to 50.0° C		
Storage Temperature	-40.0° to 158.0° F / -40.0° to 70.0° C		
Humidity	5% to 95% RH, non-condensing		
Drop Specification	Designed to withstand multiple drops at 6.0 ft./1.8 m to concrete		
Tumble Specification	Designed to withstand 2,000 tumbles in 1.5 ft./0.5 m tumbler		
Environmental Sealing	IP52		
Approved Cleaners	Standard disinfectants		
Electrostatic Discharge (ESD)	ESD per EN61000-4-2, +/-15 KV Air, +/-8 KV Direct, +/-8 KV Indirect		
Ambient Light Immunity	0 to 10,000 foot-candles / 0 to 107,600 lux		
Accessories	Gooseneck Intellistand		
<b>Symbol Decode Capability</b>			
1D	Code 39, Code 128, Code 93, Codabar/NW7, Code 11, MSI Plessey, UPC/EAN, I 2 of 5, Korean 3 of 5, GS1 DataBar, Base 32 (Italian Pharma)		
2D	PDF417, Micro PDF417, Composite Codes, TLC-39, Aztec, Data Matrix, QR Code, Micro QR, Han Xin, Postal Codes, SecurPharm, DotCode, Dotted Data Matrix		PDF417, Micro PDF417, Composite Codes, TLC-39, Aztec, Data Matrix, QR Code, Micro QR, Han Xin, Postal Codes, SecurPharm
OCR	OCR-A, OCR-B, MICR, US Currency		
Minimum Element Resolution	Code 39 - 2.0 mil Data Matrix - 4.0 mil	Code 39 - 3.0 mil Data Matrix - 5.0 mil	Code 39 - 2.0 mil Data Matrix - 4.0 mil
<b>Decode Ranges (Typical; Printing resolution, contrast, and ambient light-dependent)</b>			
Symbology/Resolution	Near/Far	Near/Far	Near/Far
Code 128: 2 mil	0.3 in. / 8 mm to 2.3 in. / 58 mm		
Code 128: 3 mil	0 in. / 0 mm to 3.5 in. / 88 mm		
Code 128: 5 mil		2.7 in. / 69 mm to 5.4 in. / 137 mm	1.7 in. / 43 mm to 5.0 in. / 127 mm
Code 128: 15 mil	4.2 in. / 107 mm to 8.6 in. / 218 mm		
Code 39: 2 mil	0.2 in. / 5 mm to 3.0 in. / 76 mm		
Code 39: 3 mil	0 in. / 0 mm to 3.8 in. / 96 mm	2.2 in. / 56 mm to 5.4 in. / 137 mm	1.3 in. / 33 mm to 6.0 in. / 152 mm
Code 39: 5 mil	0 in. / 0 mm to 5.2 in. / 132 mm	0.7 in. / 18 mm to 11.0 in. / 279 mm	0.1 in. / 3 mm to 11.5 in. / 292 mm
Code 39: 20 mil		0 in. / 0 mm to 44.0 in. / 1118 mm	0.6 in. / 15 mm to 29.0 in. / 737 mm

Handheld Code Reader V410-H series

V410-H	XD	SR	HC
Item	Description		
PDF417: 4 mil	0 in. / 0 mm to 3.3 in. / 84 mm		
PDF417: 5 mil	0 in. / 0 mm to 3.8 in. / 96 mm		
PDF417: 6.6 mil	0 in. / 0 mm to 4.5 in. / 114 mm		
PDF417: 6.7 mil		1.3 in. / 33 mm to 10.0 in. / 254 mm	0.6 in. / 15 mm to 9.3 in. / 236 mm
UPC: 13 mil (100%)	0 in. / 0 mm to 8.5 in. / 215 mm	0 in. / 0 mm to 28.0 in. / 711 mm	0 in. / 0 mm to 18.0 in. / 457 mm
Data Matrix: 4 mil	0.2 in. / 5 mm to 2.8 in. / 71 mm		
Data Matrix: 5 mil	0 in. / 0 mm to 3.4 in. / 86 mm		
Data Matrix: 10 mil	0 in. / 0 mm to 4.8 in. / 122 mm	1.0 in. / 25 mm to 11.5 in. / 292 mm	0.2 in. / 5 mm to 9.5 in. / 241 mm
QR Code: 10 mil	0 in. / 0 mm to 4.5 in. / 114 mm		
QR Code: 20 mil		0 in. / 0 mm to 17.5 in. / 445 mm	0 in. / 0 mm to 13.5 in. / 343 mm
<b>Utilities and Device Management</b>			
WebLinkPC	Programs reader parameters, upgrades firmware, provides encoded barcode data, allows image-based troubleshooting		
<b>Regulatory Compliance</b>			
LED Safety Standard	IEC 62471 Exempt Risk Group		
EMC Standards	EN 55032, EN 55035, FCC Part 15, Subpart B (Class B)		
Safety Standards	EN 62368-1		
Certifications	RCM, EAC, BSMI, CE, cULus, KC, UKCA		

Dimensions

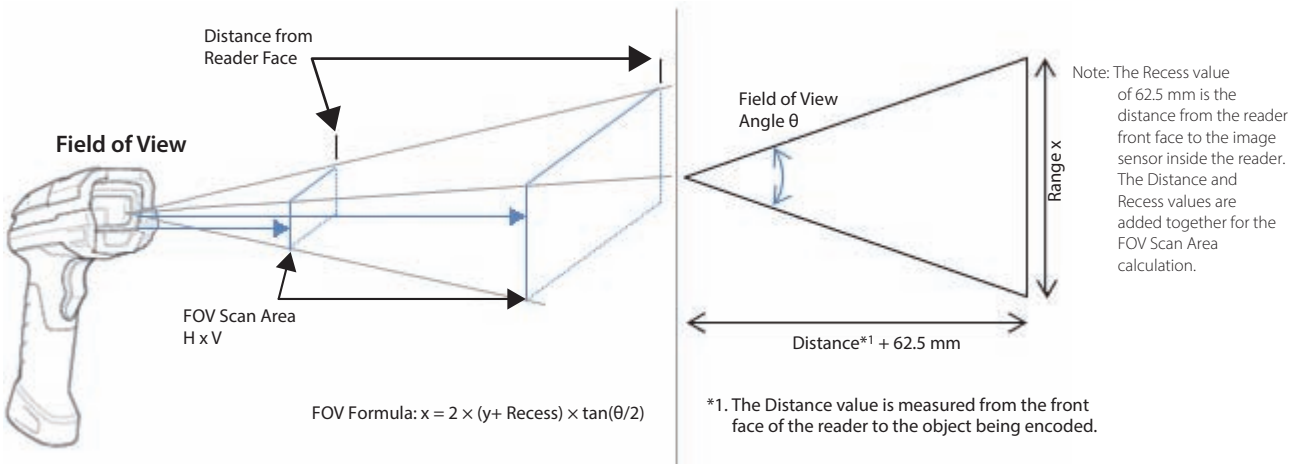
(Unit: mm)



Note: Reader dimensions are the same for the V410-H XD, V410-H SR, and V410-H HC.

Handheld Code Reader V410-H series

Imager Field of View



**XD: Image Field of View in degrees = 34 (horizontal) x 21.6 (vertical)**

y (mm)	y + Recess	$\theta$	Range x (mm)	FOV Scan Area H x V (mm)	Distance from Reader Face (mm)	FOV Scan Area H x V (in)	Distance from Reader Face (in)
5	67.5	34	41	41 x 26	5	1.6 x 1.0	0.2
5	67.5	21.6	26	-	-	-	-
71	133.5	34	82	82 x 51	71	3.2 x 2.0	2.8
71	133.5	21.6	51	-	-	-	-

**SR: Image Field of View in degrees = 36.1 (horizontal) x 22.6 (vertical)**

y (mm)	y + Recess	$\theta$	Range x (mm)	FOV Scan Area H x V (mm)	Distance from Reader Face (mm)	FOV Scan Area H x V (in)	Distance from Reader Face (in)
25	87.5	36.1	57	57 x 35	25	2.2 x 1.4	1.0
25	87.5	22.6	35	-	-	-	-
445	507.5	36.1	331	331 x 203	445	13.0 x 8.0	17.5
445	507.5	22.6	203	-	-	-	-

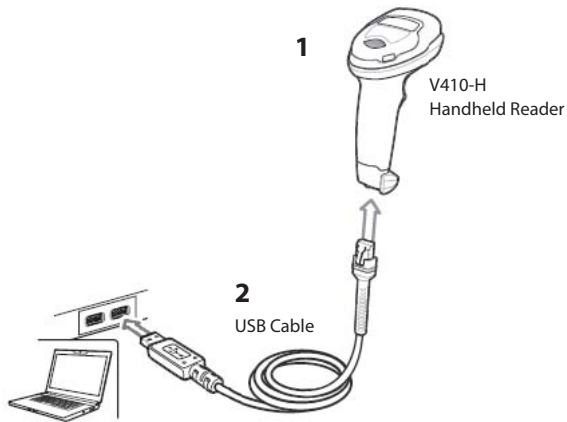
**HC: Image Field of View in degrees = 35 (horizontal) x 22 (vertical)**

y (mm)	y + Recess	$\theta$	Range x (mm)	FOV Scan Area H x V (mm)	Distance from Reader Face (mm)	FOV Scan Area H x V (in)	Distance from Reader Face (in)
3	65.5	35	41	41 x 25	3	1.6 x 1.0	0.1
3	65.5	22	25	-	-	-	-
292	354.5	25	223	223 x 138	292	8.8 x 5.4	11.5
292	354.5	22	138	-	-	-	-

Handheld Code Reader V410-H series

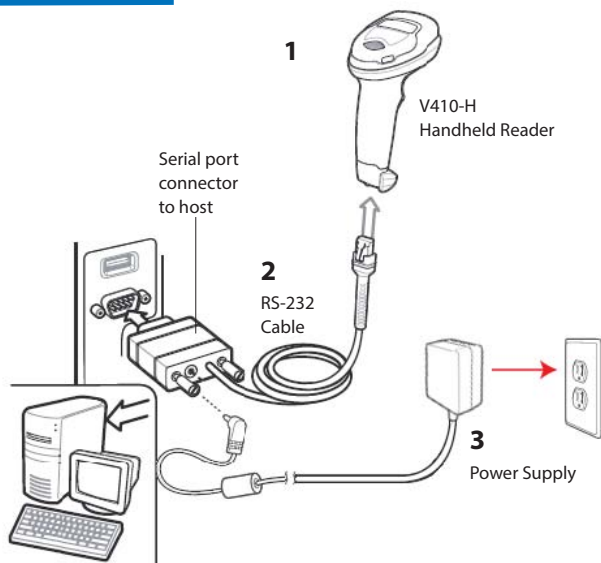
Configurations

USB



No.	Type	Model
1	V410-H XD Handheld Reader, Black Grey, Wired, with X-Mode	V410-HDS4608XD
	V410-H SR Handheld Reader, Black Grey, Wired	V410-HDS4608SR
	V410-H HC Handheld Reader, White, Wired	V410-HDS4608HC
2	Cable, USB, 7 ft., Mod Plug	V410-WUB-2M

RS-232

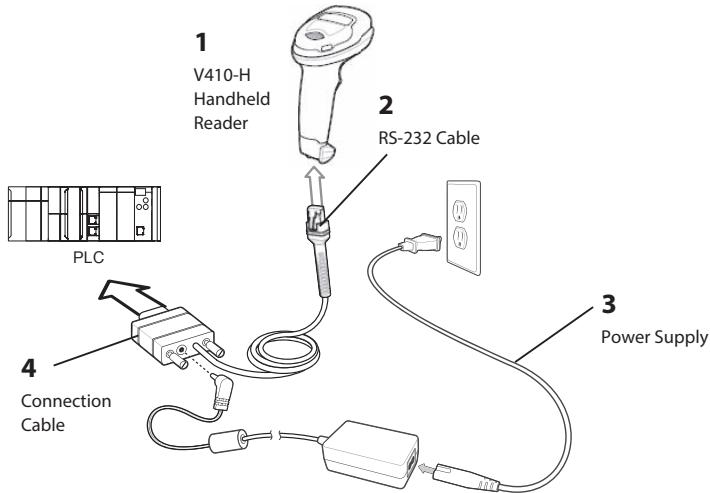


No.	Type	Model
1	V410-H XD Handheld Reader, Black Grey, Wired, with X-Mode	V410-HDS4608XD
	V410-H SR Handheld Reader, Black Grey, Wired	V410-HDS4608SR
	V410-H HC Handheld Reader, White, Wired	V410-HDS4608HC
2	Cable, RS-232, DB9F, TXD-2, 7 ft.	V410-WR-2M
3	Kit, V410-H AC Power Supply, 5.2 VDC, 1A	V410-AC0-1

## Handheld Code Reader V410-H series

With omron PLC

## Wired RS-232



No.	Type	Model
1	V410-H XD Handheld Reader, Black Grey, Wired, with X-Mode	V410-HDS4608XD
	V410-H SR Handheld Reader, Black Grey, Wired	V410-HDS4608SR
	V410-H HC Handheld Reader, White, Wired	V410-HDS4608HC
2	Cable, RS-232, DB9F, TXD-2, 7 ft.	V410-WR-2M
3	Kit, V410-H AC Power Supply, 5.2 VDC, 1A	V410-AC0-1
4	RS-232C Cable for Omron PLCs (CS/CJ/NJ) *1	V430-WPLC-2M

\*1. The RS-232C cable is required to connect Omron's CS/CJ/NJ Controller. No additional RS-232C cable is required to connect Omron's NX Machine Automation Controller.

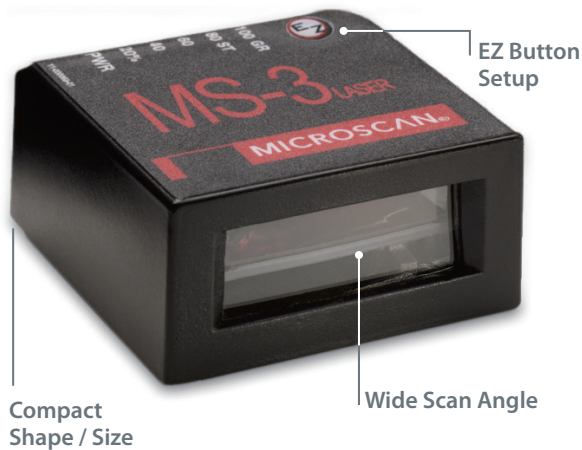
## Related Manuals

Man. No.	Model	Manual
Z439 (84-9000362-02)	V410-HDS4608SR, V410-HDS4608XD, V410-HDS4608HC, V450-HDS3608-0001, V450-HDS3608-0002	V410-H and V450-H Handheld Barcode Reader User Manual





## Laser Barcode Reader

**MS-3 series****Ultra-Compact  
Laser Barcode Reader**

The MS-3 laser barcode reader offers the fastest read performance\* in embedded compact bar code readers. The wide scan angle of 70 degrees is coupled with ultra-compact size and flexible mounting.

High performance and flexibility make the MS-3 the optimal choice for reliable reading in embedded instruments.

\*Based on Omron investigation in march 2018.

**MS-3: At a Glance**

- Decodes / second: up to 1000
- Read Range: 51 to 254 mm
- Wide Scan Angle
- IP54 Enclosure



ESP® Easy Setup Program: Single-point software provides quick and easy setup and configuration of all OMRON Microscan readers.



EZ Button: This performs reader setup and configuration with no computer required.

**MS-3: Available Codes**

Linear



Please see the Ratings and Specifications for a complete list of supported symbologies.

**Compact & Lightweight**

44.5 mm square by 21.6 mm tall code reader weighs only 57 g for easy mounting onto robotic equipment or into tight spaces.

**High Scan Speed**

Adjustable scan speed from 300 up to 1000 decodes per second and OMRON Microscan's world-class decode algorithms ensure accurate reading every time.

**Wide Scan Angle**

The wide scan angle of over 70 degrees and a factory customizable focal point add up to space savings within your system, allowing greater flexibility with positioning.

**Visible Indicators**

Illuminated LEDs on top of the code reader provide visual confirmation of the code reader performance.

**Real-time Controls**

The inputs include a trigger signal, a "new master" input, and a programmable input for resetting counters or releasing outputs. The outputs can be configured to activate upon a variety of conditions including matchcode and diagnostic operations.

**Application Examples**

- Clinical instruments
- Bank ATMs
- Parking kiosks
- Point-of-sale terminals
- Robotics

Laser Barcode Reader MS-3 series

Ordering Information

Laser Barcode Readers

Scan mode	Read range	Installation type	Model
Single Line	Low Density	Standard	FIS-0003-0001G
	High Density		FIS-0003-0002G
Raster Line	Low Density	Standard	FIS-0003-0003G
	High Density		FIS-0003-0004G
Single Line	Low Density	Right Angle	FIS-0003-0005G
Raster Line	Low Density	Right Angle	FIS-0003-0007G

Accessories

Type	Model
MS-Connect 210, Connectivity Box with Display	FIS-0210-0001G
Relay Module, 120 VAC, 3 Amp Output, Series 70, Type SM, for MS-Connect 210	98-000013-04
Relay Module, 240 VAC, 3 Amp Output, Series 70, Type SM, for MS-Connect 210	98-000013-05
Relay Module, 24 VDC, 3 Amp Output, Series 70, Type SM, for MS-Connect 210	98-000013-06
Cable, MS-3 to MS-Connect 210, 1.8 m (6 feet)	61-000127-02
IB-3PC Keyboard Wedge / Interface Box	FIS-0001-0030G
Converter, IC-332, 24 V / 5 V, Opto I / O for use with IB-131	FIS-0001-0035G
IB-131 Interface Box	99-000018-01
Communication Cable, DB-25 Plug to DB-9 Socket, 1.8 m (6 feet)	61-300026-03
Communication Cable, DB-9 Socket to DB-9 Socket, 1.8 m (6 feet)	61-000010-02
IB-131 Daisy Chain Cable	61-100029-03
Photoelectric Sensor, M12, 4-pin Plug, NPN output, Cable length 2m	99-9000016-01

Power Supplies

Type	Model
Power Supply, 100-240 VAC, +5 VDC, 5-pin Plug, U.S. / Euro Plug	97-000011-01
Power Supply, 100-240 VAC, +5 VDC, 2-pin Plug, U.S. / Euro Plug	97-000011-02
Power Supply, 100-240 VAC, +24 VDC, TRK 3-pin, U.S. / Euro Plug	97-000012-02

Note: Do not use the power supplies or power supply cords indicated in this catalog with any other electric or electronic equipment. When using the MS-3 Series, please use the power supply and power supply cord indicated in this catalog.

Mounting and Connectors

Type	Model
Mounting Arm / Adapter Kit for MS-3, 101 mm (4 inches)	98-000048-01
Mounting Stand Base Plate Kit	98-000054-01
Mounting Arm Extension Kit for MS-3, 101 mm (4 inches)	98-000053-01
Mounting Arm Extension Kit for MS-3, 76 mm (3 inches)	98-000053-02
Side Mount Bracket for MS-3	98-000060-01
Angle Mount Bracket for MS-3	98-000059-01
Through-Hole Mount Bracket for MS-3	98-000057-02
Extended Right Angle Mirror for MS-3	98-000058-02

## Laser Barcode Reader MS-3 series

## Ratings and Specifications

Applicable codes		Code 39, Code 128, Interleaved 2 of 5, Codabar, Code 93, UPC / EAN, Pharmacode
Reading performance	Scan mode	Single line, fixed raster
	Scan rate	Adjustable from 300 to 1,000 scans / s, default=500
	Scan width angle	>70°
	Pitch	±50°
	Skew	±40°
	Label contrast	25% min. at 650 nm
Communications	Interface	RS-232, RS-422 / 485, USB
	Protocols	Point-to-Point, Point-to-Point w / RTS / CTS, Point-to-Point w / XON / XOFF, Point-to-Point w / RTS / CTS & XON / XOFF, Polling Mode D, Multidrop, User Defined, User Defined Multidrop, Daisy Chain
I / O specifications	Trigger input	3 to 24 V rated (1 mA at 5 VDC)
	New Master	3 to 24 V rated (1 mA at 5 VDC)
	Outputs (1, 2, 3)	5 V TTL compatible, can sink 10 mA and source 2 mA
	Beeper	Good read, Match/Mismatch, Noread
	On / Off LEDs	1 status, 1 power, 5 read performance (representing percentage of good decodes)
Power requirement		5 VDC±5%, 200 mV p-p max. ripple, 260 mA at 5 VDC (typ.)
Laser light	Type	Semiconductor visible laser diode (650 nm nominal)
	Safety class	IEC 60825-1 Class II, 1.0 mW max.
Environmental specifications	Ambient temperature range	Operating: 0 to 50°C, Storage: -40 to 75°C
	Ambient humidity range	Up to 90% (with no icing or condensation)
	Operating life	40,000 hours at 25°C
	Degree of protection	IP54 (category 2)
Weight	Standard	Approx. 106 g
	Right Angle	Approx. 136 g
Safety standards		FCC, UL/c UL, CE, KC, RCM, EAC, BIS

## HOST CONNECTOR / PIN ASSIGNMENTS

## High Density 15 Pin D-sub Socket Connector

Pin No.	Host RS-232	Host / Aux RS-232	Host RS-422 / 485	In / Out
1	Power +5 VDC			In
2	TxD	TxD	TxD(-)	Out
3	RxD	RxD	RxD(-)	In
4	Power / Signal Ground			
5	NC			
6	RTS	Aux TxD	TxD(+)	Out
7	Output 1 TTL <sup>a</sup>			Out
8	Default configuration <sup>b</sup>			In
9	Trigger			In
10	CTS	Aux RxD	RxD(+)	In
11	Output 3 TTL <sup>a</sup>			Out
12	New Master (NPN)			In
13	Chassis ground <sup>c</sup>			
14	Output 2 TTL <sup>a</sup>			Out
15	NC			

a. Can sink 10 mA and source 2 mA.

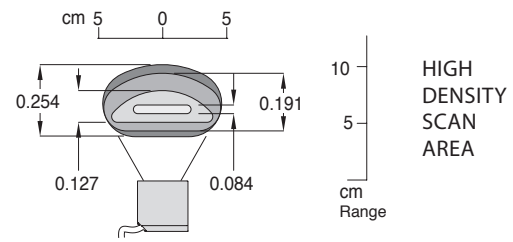
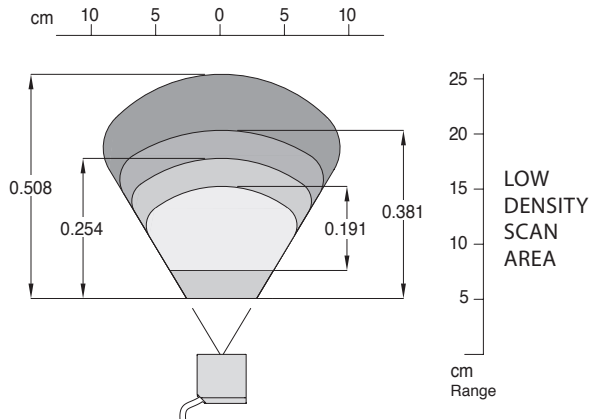
b. The default is activated by connecting pin 8 to ground pin 4.

c. Chassis ground: Used to connect chassis body to earth ground only. Not to be used as power or signal return.

Laser Barcode Reader MS-3 series

Read Ranges

(Unit: mm)



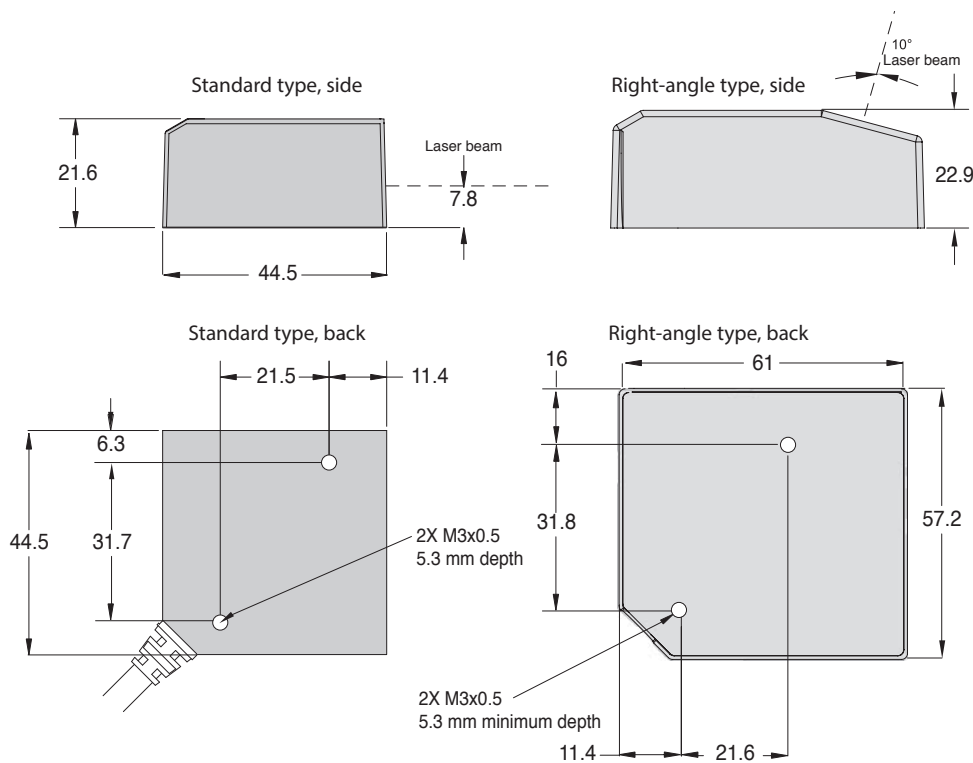
Narrow-bar-width	Read range
0.191 mm	76 to 152 mm
0.254 mm	51 to 178 mm
0.381 mm	51 to 203 mm
0.508 mm	51 to 254 mm

Narrow-bar-width	Read range
0.084 mm	Contact OMRON.
0.127 mm	51 to 79 mm
0.191 mm	43 to 94 mm
0.254 mm	38 to 102 mm

Note: For Right Angle option, subtract 15 mm from read range. Read ranges are based upon optimal scan speed for specific symbol density.

Dimensions

(Unit: mm)



Laser Label Indications

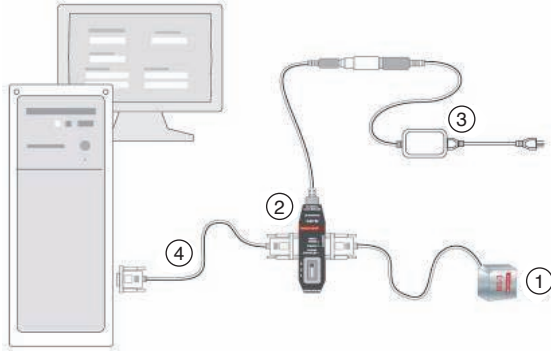
This warning label is attached to the laser barcode reader. Never remove this label or place objects in front of it.

Laser Barcode Reader MS-3 series

System Configurations

Stand Alone (5V)

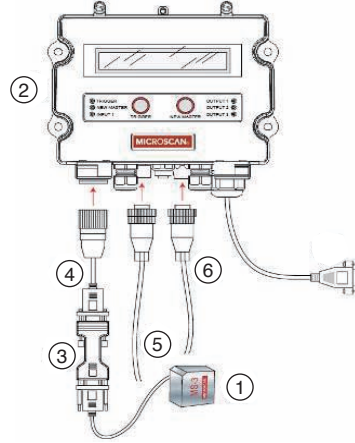
This is the basic setup for a single MS-3.



No.	Type	Model
1	MS-3 Laser Barcode Reader	FIS-0003-□□□□G
2	IB-3PC Keyboard Wedge / Interface Box	FIS-0001-0030G
3	Power Supply, 100-240VAC, +5VDC, 5Pin, USA / EUR Plug	97-000011-01
4	Cable, Communication, DB-9 Socket-to-DB-9 Socket, 6 ft.	61-000010-02
-	Kit, Mounting Arm / Adapter, 4 in., for MS-3	98-000048-01
-	Kit, Mounting Stand Base Plate	98-000054-01

Stand Alone (10-28V)

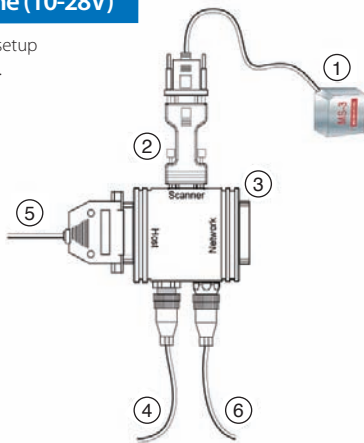
With MS-Connect 210  
This is the basic setup for a single MS-3 and MS-Connect 210.



No.	Type	Model
1	MS-3 Laser Barcode Reader	FIS-0003-□□□□G
2	Connectivity Box A	FIS-0210-0001G
3	Converter, IC-332, 24V / 5V, Opto I / O, for Use with IB-131	FIS-0001-0035G
4	Cable, MS-3-to-MS-Connect 210, 6 ft.	61-000127-02
5	Power Supply (100-240 VAC, +24VDC, TRK 3Pin, USA/Euro Plug)	97-000012-02
6	Photoelectric Sensor, M12, 4-pin Plug, NPN output, Cable length 2m	99-9000016-01

Stand Alone (10-28V)

This is the basic setup for a single MS-3.



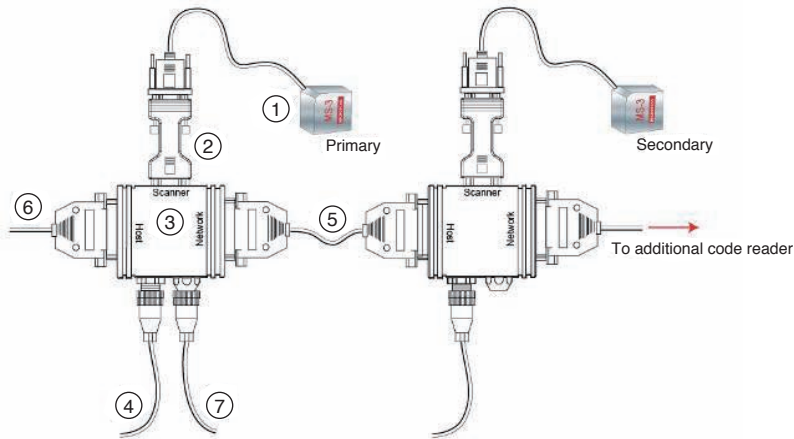
No.	Type	Model
1	MS-3 Laser Barcode Reader	FIS-0003-□□□□G
2	Converter, IC-332, 24V / 5V, Opto I / O, for Use with IB-131	FIS-0001-0035G
3	IB-131 Interface Box	99-000018-01
4	Power Supply (100-240 VAC, +24VDC, TRK 3Pin, USA / Euro Plug)	97-000012-02
5	Cable, Communication, DB-25 Plug-to-DB-9 Socket, 6 ft.	61-300026-03
6	Photoelectric Sensor, M12, 4-pin Plug, NPN output, Cable length 2m	99-9000016-01
-	Kit, Mounting Arm / Adapter, 4 in., for MS-3	98-000048-01
-	Kit, Mounting Stand Base Plate	98-000054-01

Laser Barcode Reader MS-3 series

System Configurations

**Daisy Chain**

A primary code reader is linked directly to the host. Secondary code readers (up to 9) are linked in tandem. Data is sent from the primary code reader directly to the host.



No.	Type	Model
1	MS-3 Laser Barcode Reader	FIS-0003-□□□□G
2	Converter, IC-332, 24V / 5V, Opto I / O, for Use with IB-131	FIS-0001-0035G
3	IB-131 Interface Box	99-000018-01
4	Power Supply (100-240 VAC, +24VDC, TRK 3Pin, USA / Euro Plug)	97-000012-02
5	Cable, Daisy Chain, IB-131	61-100029-03
6	Cable, Communication, DB-25 Plug-to-DB-9 Socket, 6 ft.	61-300026-03
7	Photoelectric Sensor, M12, 4-pin Plug, NPN output, Cable length 2m.	99-9000016-01
-	Kit, Mounting Arm / Adapter, 4 in., for MS-3	98-000048-01
-	Kit, Mounting Stand Base Plate	98-000054-01

## Laser Barcode Reader

# QX-830 series

### Compact Industrial Laser Barcode Reader



The QX-830 laser barcode reader combines flexible connectivity with high performance decoding capabilities to reliably read 1D barcodes in almost any automation environment. In addition to the Quick Connect System and X-Mode Technology, the QX-830 features IP54 industrial sealing and optional embedded Ethernet protocols.

High performance, simple connectivity, and the highest quality enclosure make the QX-830 an ideal laser barcode reader for any industrial application.

#### QX-830: At a Glance

- Scans / second: 300 to 1400
- Read Range: 25 to 762 mm
- Optional Embedded Ethernet TCP / IP & EtherNet / IP
- IP54 Enclosure



ESP® Easy Setup Program: Single-point software solution provides quick and easy setup and configuration of all OMRON Microscan readers.



EZ Button: This performs reader setup and configuration with no computer required.



Visible Indicators: Performance indicators include "good read" green flash and LEDs.



QX Platform: Quick Connect system and X-Mode technology combine to provide simple connectivity, networking, and high performance decoding.



#### Quick Connect System

- Plug and play setup
- Single or multi-code reader solutions

#### X-Mode Technology

- Decodes damaged, poorly printed, or misaligned codes
- Ensures high read rates and throughput

#### High Performance

Aggressive decoding capabilities allow reliable reading of barcodes out to 762 mm, at up to a 254 mm beam width.

#### Flexibility

The compact size of the QX-830 allows flexible positioning for a variety of applications.

#### Real-time Feedback

Visible LED indicators on the side of the code reader and a "good read" green flash projecting from the front window provide confirmation of the code reader's performance. The green flash is visible within a complete 360 degree radius from the code reader.

#### Application Examples

- Any industrial environment from light to heavy duty
- Conveyor lines
- Packaging and sortation
- Electronics production
- Embedded within machinery

#### QX-830: Available Codes

Linear



MicroPDF



PDF417



GS1 Databar



Stacked

Please see the Ratings and Specifications for a complete list of supported symbologies.

#### Ethernet Protocols

The QX-830 includes optional embedded Ethernet TCP / IP and EtherNet / IP for high speed communication.

Multi Code Reader

Handheld Code Reader

Laser Barcode Reader

Code Verification System

Laser Barcode Reader QX-830 series

Ordering Information

Laser Barcode Readers

Scan mode	Read range	Interface	Model
Single Line	Low Density	Serial *1	FIS-0830-0001G
	Middle Density		FIS-0830-0002G
	High Density		FIS-0830-0003G
Raster Line	Low Density	Serial *1	FIS-0830-0004G
	Middle Density		FIS-0830-0005G
	High Density		FIS-0830-0006G
	Low Density / Plastic Window		FIS-0830-0010G
Single Line	Low Density	Serial *2 and Ethernet	FIS-0830-1001G
	Middle Density		FIS-0830-1002G
	High Density		FIS-0830-1003G
Raster Line	Low Density	Serial *2 and Ethernet	FIS-0830-1004G
	Middle Density		FIS-0830-1005G
	High Density		FIS-0830-1006G
	Low Density / Plastic Window		FIS-0830-1010G

\*1. Supports RS-232, RS-422, or RS-485.  
 \*2. Supports RS-232.

Accessories

Type	Model
QX-1 Interface Device	98-000103-02
QX Cordset, Common, M12 12-pin Socket (Screw-On) to M12 12-pin Plug (Screw-On), 3 m	61-000148-02
QX Cordset, Common, M12 12-pin Socket (Screw-On) to M12 12-pin Plug (Screw-On), 1 m	61-000162-02
QX Cordset, Host, Serial, M12 12-pin Socket (Screw-On) to DB-9 Socket, 1 m	61-000153-02
QX Cordset, Host, Serial, M12 12-pin Socket (Screw-On) to DB-9 Socket, 3 m	61-000164-02
QX Cordset, Host, Serial, M12 12-pin Plug (Screw-On) to DB-9 Socket, 1 m	61-000152-02
QX Cordset, Host, Serial, M12 12-pin Plug (Screw-On) to DB-9 Socket, 3 m	61-000165-02
QX Cordset, Host, Ethernet, M12 8-pin Plug (Screw-On) to RJ45, 1 m	61-000160-03
QX Cordset, M12 12-pin Plug to M12 12-pin Socket to DB-25 Plug Turck Connectors	61-000172-02
QX Cordset, M12 12-pin Plug & M12 12-pin Socket to MS-Connect 210, RS-232, 2 m	61-000158-03
QX Cordset, M12 12-pin Plug (Screw-On) to Flying Leads, 3 m	61-000166-02
QX Cordset, M12 12-pin Plug & Socket to IB-131, RS-232, 2 m	61-000159-03
QX Cordset, M12 12-pin Socket to IB-131, RS-232/RS-485, 2 m	61-000159-04
Photoelectric Sensor, M12, 4-pin Plug, NPN output, Cable length 2m	99-9000016-01

Power Supplies

Type	Model
Power Supply, 100-240 VAC, +24 VDC, M12 12-pin Socket	97-000012-01
Power Supply, 100-240 VAC, +24 VDC, M12 12-Pin Plug	97-000012-04

Note: Do not use the power supplies or power supply cords indicated in this catalog with any other electric or electronic equipment.  
 When using the QX-830 Series, please use the power supply and power supply cord indicated in this catalog.

Mounting and Connectors

Type	Model
Mounting Plate Kit for QX-830 / QX-870	98-500006-01
Right Angle Mirror Kit for QX-830	98-200026-02
Mounting Arm/Adapter Kit for QX-830 / QX-870, 152 mm (6 inches)	98-000016-01
Mounting Arm Extension Kit for all code readers, 152 mm (6 inches)	98-000037-01
L-Bracket Kit for QX Series	98-000148-01
Mounting Stand Base Plate Kit	98-000054-01



Laser Barcode Reader QX-830 series

Ratings and Specifications

Multi Code Reader

Handheld Code Reader

Laser Barcode Reader

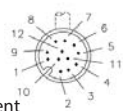
Code Verification System

Applicable codes	Standard	Code 39, Codabar, Code 93, Interleaved 2 of 5, Code 128, PDF417, Micro PDF417, Pharmacode, UPC, GS1 Databar
	Application standards	UCC / EAN-128, AIAG
Reading performance	Mirror type	Rotating, 10-faceted
	Optional raster mirror image	10 raster scan lines over a 2° arc (or 0.500-inch raster height at 8-inch [203-mm] distance)
	Scan rate	Adjustable from 300 to 1,400 scans / s, default=500
	Scan width angle	60° (typ.)
	Pitch	±50° max.
	Skew	±40° max.
	Label contrast	25% min. absolute dark to light differential at 655 nm wavelength
Communications	Interface	RS-232 / 422 / 485 or Ethernet *
	Protocols	Point-to-Point, Point-to-Point w / RTS / CTS, Point-to-Point w / XON / XOFF, Point-to-Point w / RTS / CTS & XON / XOFF, Multidrop, Daisy Chain, User-Defined Multidrop, Ethernet TCP / IP, EtherNet / IP
I / O specifications	Input 1 / Trigger / New Master	Optoisolated, 4.5 to 28 V rated, (13 mA at 24 VDC) New Master is (-) to signal ground
	Outputs (1, 2 & 3)	Optoisolated, 1 to 28 V rated, (I <sub>CE</sub> < 100 mA at 24 VDC, current limited by user)
Power requirement		10 to 28 VDC, 200 mW p-p max. ripple, 180 mA at 24 VDC (typ.)
Laser light	Type	Laser diode
	Output wavelength	655 nm nominal
	Beam divergence	0.4 mrad (typ.)
	Pulse time	40 to 186 μs
	Maximum output	1.75mW
	Safety class	Visible laser: IEC 60825-1 Class 2
Environmental specifications	Ambient temperature range	Operating: 0 to 50°C, Storage: -40 to 75°C
	Ambient humidity range	Up to 90% (with no icing or condensation)
	Degree of protection	IP54
	Operating life	50,000 hours at 25°C
Weight		Approx. 212 g
Dimensions		35 x 65.7 x 87.8 mm (H x D x W)
Safety standards		FCC, UL/c UL, CE, CB, KC, RCM, EAC, BIS
Material (Case)		Aluminum diecast

\* Depends on model. See Ordering Information for details.

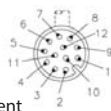
PIN ASSIGNMENTS

CONNECTOR A  
M12 12-PIN PLUG



Pin Assignment
1 Trigger
2 Power
3 Default
4 New Master
5 Output 1
6 Output 3
7 Ground
8 Input Common
9 Host RxD
10 Host TxD
11 Output 2
12 Output Common

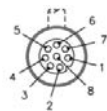
CONNECTOR B  
M12 12-PIN SOCKET



Pin Assignment
1 Trigger
2 Power
3 Terminated
4 Input 1
5 422/485 TxD (+)
6 422/485 RxD (+)
7 Ground
8 Input Common
9 TxD / RTS
10 RxD / CTS
11 422 / 485 TxD (-)
12 422 / 485 RxD (-)

ETHERNET CONFIGURATION

CONNECTOR B  
M12 8-PIN SOCKET



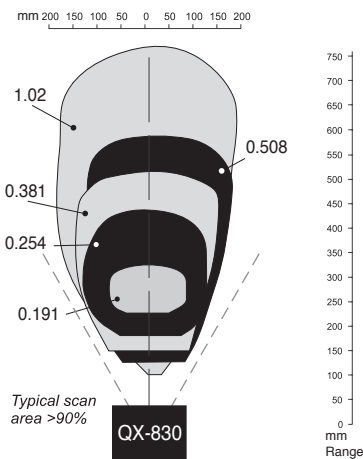
Pin Assignment
1 Terminated
2 Terminated
3 Terminated
4 TX (-)
5 RX (+)
6 TX (+)
7 Terminated
8 RX (-)

Laser Barcode Reader QX-830 series

Read Ranges\*

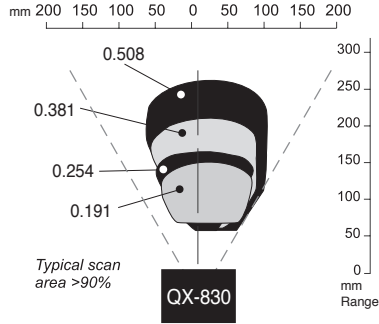
(Unit: mm)

Low Density Scan Area



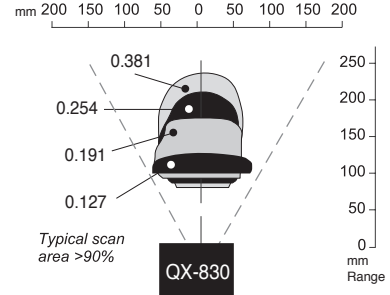
Narrow-bar-width	Read range
0.191 mm	254 to 305 mm
0.254 mm	178 to 406 mm
0.381 mm	152 to 483 mm
0.508 mm	127 to 559 mm
1.02 mm	102 to 762 mm

Medium Density Scan Area



Narrow-bar-width	Read range
0.191 mm	64 to 140 mm
0.254 mm	38 to 178 mm
0.381 mm	38 to 216 mm
0.508 mm	38 to 279 mm
0.762 mm	25 to 305 mm

High Density Scan Area

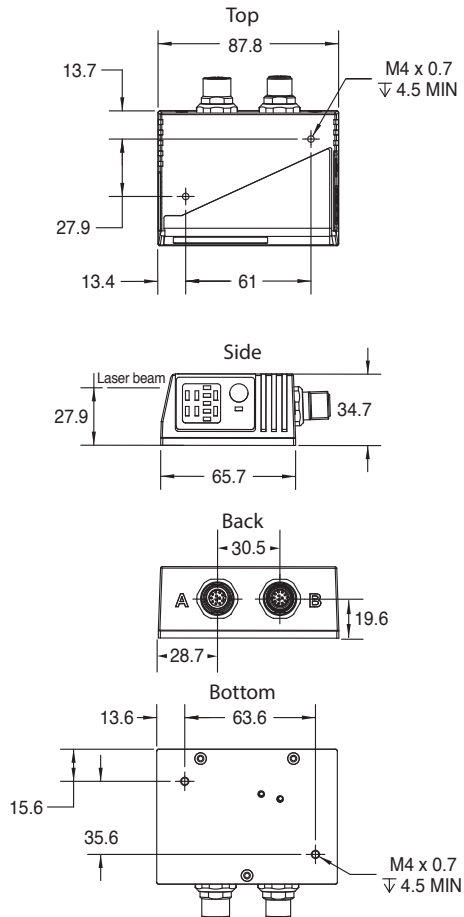


Narrow-bar-width	Read range
0.084 mm	Contact OMRON.
0.127 mm	102 to 127 mm
0.191 mm	89 to 171 mm
0.254 mm	82 to 203 mm
0.381 mm	82 to 229 mm

\* Ranges based on a Grade A, Code 39 label, at 500 scans per second. Data subject to change.

Dimensions

(Unit: mm)



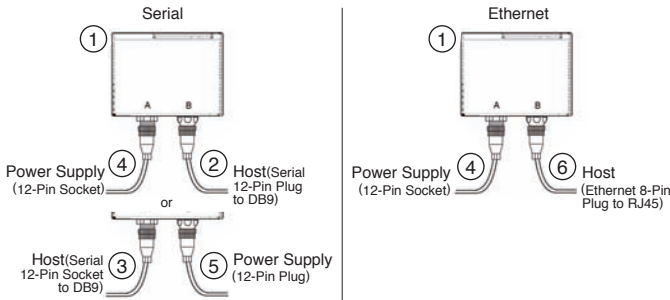
Laser Label Indications

This warning label is attached to the laser barcode reader. Never remove this label or place objects in front of it.

Laser Barcode Reader QX-830 series

System Configurations

Stand Alone Configurations

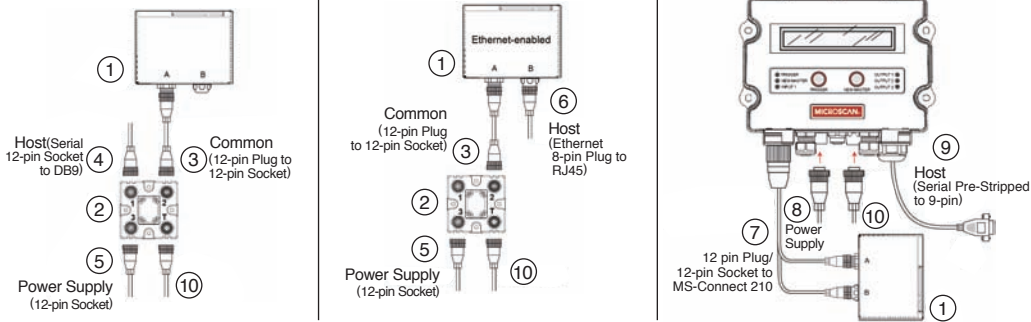


No.	Type	Model
1	QX-830 Laser Barcode Reader	FIS-0830-□□□□G
2	QX Cordset, Host, Serial, M12 12-Pin Plug (Screw-On)-to-DB-9 Socket, 1 m.	61-000152-02*
3	QX Cordset, Host, Serial, M12 12-Pin Socket (Screw-On)-to-DB-9 Socket, 1 m.	61-000153-02*
4	Power Supply, 100-240VAC, +24VDC, M12 12-Pin Socket	97-000012-01
5	Power Supply, 100-240VAC, +24VDC, M12 12-Pin Plug	97-000012-04
6	QX Cordset, Host, Ethernet, M8 8-Pin Plug (Screw-On)-to-RJ45, 1 m.	61-000160-03
-	Kit, 6 in. Mounting Arm / Adapter, QX-830, QX-870	98-000016-01
-	Kit, Mounting Stand Base Plate	98-000054-01

\* Cordsets available in multiple lengths.

Stand Alone Configurations

With QX-1 or MS-Connect 210



No.	Type	Model
1	QX-830 Laser Barcode Reader	FIS-0830-□□□□G
2	QX-1 Interface Device	98-000103-02
3	QX Cordset, Common, M12 12-Pin Socket (Screw-On)-to-M12 12-Pin Plug (Screw-On), 1 m.	61-000162-02*1
4	QX Cordset, Host, Serial, M12 12-Pin Socket (Screw-On)-to-DB-9 Socket, 1 m.	61-000153-02*1
5	Power Supply, 100-240VAC, +24VDC, M12 12-Pin Socket	97-000012-01
6	QX Cordset, Host, Ethernet, M12 8-Pin Plug (Screw-On)-to-RJ45, 1 m.	61-000160-03*1
7	QX Cordset, M12 12-Pin Plug & M12 12-Pin Socket-to-MS-Connect 210 (RS-232), 2 m.	61-000158-03
8	Power Supply, 100-240VAC, +24VDC, TRK 3-Pin, U.S. / Euro Plug)	97-000012-02
9	Connectivity Box	FIS-0210-0001G*2
10	Photoelectric Sensor, M12, 4-pin Plug, NPN output, Cable length 2m	99-9000016-01
-	Kit, 6 in. Mounting Arm / Adapter, QX-830, QX-870	98-000016-01
-	Kit, Mounting Stand Base Plate	98-000054-01

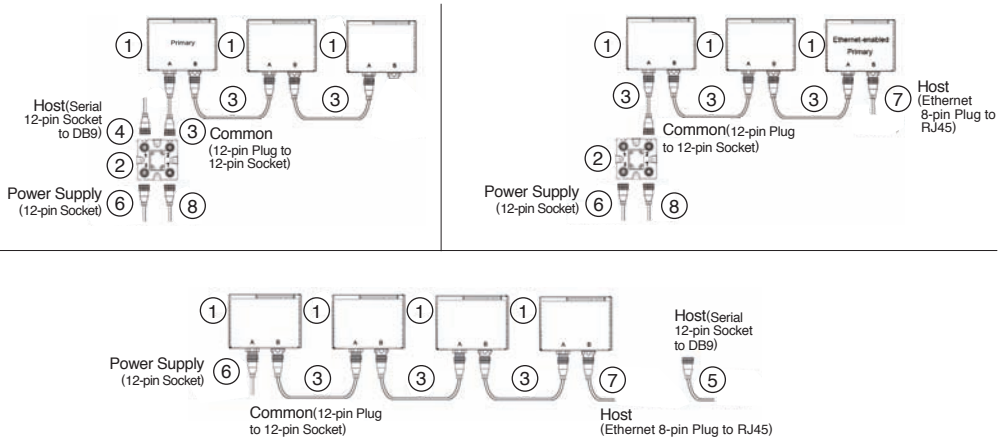
\*1. Cordsets available in multiple lengths

\*2. Refer to MS-Connection page for complete listing of MS-Connection 210 options

Laser Barcode Reader QX-830 series

System Configurations

Daisy Chain Configurations



No.	Type	Model
1	QX-830 Laser Barcode Reader	FIS-0830-□□□□G
2	QX-1 Interface Device	98-000103-02
3	QX Cordset, Common, M12 12-Pin Socket(Screw-On)-to-M12 12-Pin Plug(Screw-On), 1 m.	61-000162-02*
4	QX Cordset, Host, Serial, M12 12-Pin Socket (Screw-On)-to-DB-9 Socket, 1 m.	61-000153-02*
5	QX Cordset, Host, Serial, M12 12-Pin Plug (Screw-On)-to-DB-9 Socket, 1 m.	61-000152-02*
6	Power Supply, 100-240VAC, +24VDC, M12 12-Pin Socket	97-000012-01
7	QX Cordset, Host, Ethernet, M8 8-Pin Plug (Screw-On)-to-RJ45, 1 m.	61-000160-03
8	Photoelectric Sensor, M12, 4-pin Plug, NPN output, Cable length 2m	99-9000016-01
-	Kit, 6 in. Mounting Arm / Adapter, QX-830, QX-870	98-000016-01
-	Kit, Mounting Stand Base Plate	98-000054-01

\* Cordsets available in multiple lengths.

Multi Code Reader

Handheld Code Reader

Laser Barcode Reader

Code Verification System

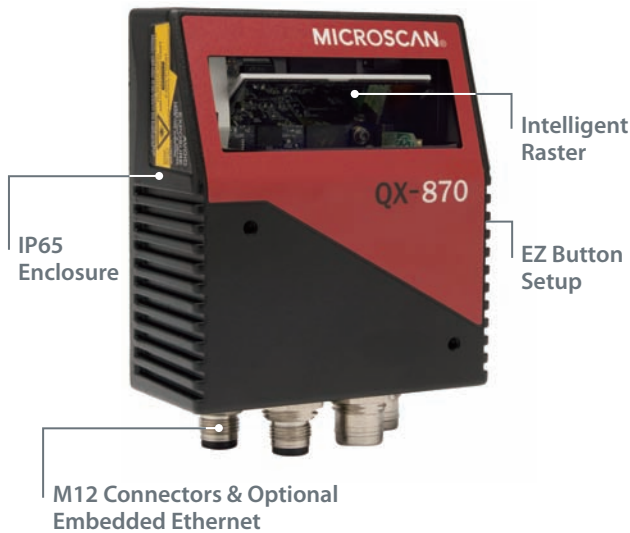
Related Manuals

Man.No.	Model	Manual
84-000830	QX-830	Compact Industrial Scanner User's Manual

## Laser Barcode Reader

# QX-870 series

### Industrial Raster Laser Barcode Reader



The QX-870 laser barcode reader partners the latest technologies in barcode reading and connectivity into an easy to use solution for barcode track, trace and control applications. Simple to set up and deploy, it features a programmable sweeping raster to read multiple codes, in varying locations, even if they are damaged or mis-aligned.

With plug and play setup and the most aggressive decode algorithms available, the QX-870 an ideal laser barcode reader for any industrial application.

#### QX-870: At a Glance

- Scans / second: 300 to 1400
- Read Range: 25 to 762 mm
- Optional Embedded Ethernet TCP / IP & EtherNet / IP
- IP65 Enclosure



ESP® Easy Setup Program: Single-point software solution provides quick and easy setup and configuration of all OMRON Microscan readers.



EZ Button: This performs reader setup and configuration with no computer required.



Visible Indicators: Performance indicators include "good read" green flash and LEDs.



Sweeping Raster: This programmable feature enables the reader for multiple symbols at varying distances and locations.



QX Platform: Quick Connect system and X-Mode technology combine to provide simple connectivity, networking, and high performance decoding.



#### Quick Connect System

- Plug and play setup
- Single or multi-reader solutions

#### X-Mode Technology

- Decodes damaged, poorly printed, or misaligned codes
- Ensures high read rates and throughput

#### High Performance

Aggressive decoding capabilities allow reliable reading of barcodes out to 762 mm, at up to a 254 mm beam width.

#### Ethernet Protocols

The QX-870 includes optional embedded Ethernet TCP / IP and EtherNet / IP for high speed communication.

#### Intelligent Raster

In addition to sweep angle and speed controls, the QX-870 features a programmable raster with intelligent auto framing technology. Advanced software will automatically frame the raster height and width of the laser to match the barcode, allowing selective targeting of codes within a single read cycle.

#### Application Examples

- Any industrial environment from light to heavy duty
- Automotive assembly
- Packaging and sortation
- Electronics production
- Embedded within machinery

#### QX-870: Available Codes

Linear



Stacked

MicroPDF



PDF417



GS1 Databar



Please see the Ratings and Specifications for a complete list of supported symbologies.

Laser Barcode Reader QX-870 series

Ordering Information

Laser Barcode Readers

Scan mode	Read range	Interface	Model
Sweeping Raster	Low Density	Serial *	FIS-0870-0004G
	Medium Density		FIS-0870-0005G
	High Density		FIS-0870-0006G
	Low Density / Plastic Window		FIS-0870-0007G
Sweeping Raster	Low Density	Serial * and Ethernet	FIS-0870-1004G
	Medium Density		FIS-0870-1005G
	High Density		FIS-0870-1006G

\* Supports RS-232, RS-422, or RS-485.

Accessories

Type	Model
QX-1 Interface Device	98-000103-02
QX Cordset, Common, M12 12-pin Socket (Screw-On) to M12 12-pin Plug (Screw-On), 3 m	61-000148-02
QX Cordset, Common, M12 12-pin Socket (Screw-On) to M12 12-pin Plug (Screw-On), 1 m	61-000162-02
QX Cordset, Host, Serial, M12 12-pin Socket (Screw-On) to DB-9 Socket, 1 m	61-000153-02
QX Cordset, Host, Serial, M12 12-pin Socket (Screw-On) to DB-9 Socket, 3 m	61-000164-02
QX Cordset, Host, Serial, M12 12-pin Plug (Screw-On) to DB-9 Socket, 1 m	61-000152-02
QX Cordset, Host, Serial, M12 12-pin Plug (Screw-On) to DB-9 Socket, 3 m	61-000165-02
QX Cordset, Host, Ethernet, M12 8-pin Plug (Screw-On) to RJ45, 1 m	61-000160-03
QX Cordset, M12 12-pin Plug to M12 12-pin Socket to DB-25 Plug Turck Connectors	61-000172-02
QX Cordset, M12 12-pin Plug & M12 12-pin Socket to MS-Connect 210, RS-232, 2 m	61-000158-03
QX Cordset, M12 12-pin Plug (Screw-On) to Flying Leads, 3 m	61-000166-02
QX Cordset, M12 12-pin Plug & Socket to IB-131, RS-232, 2 m	61-000159-03
QX Cordset, M12 12-pin Socket to IB-131, RS-232 / RS-485, 2 m	61-000159-04
Photoelectric Sensor, M12, 4-pin Plug, NPN output, Cable length 2m	99-9000016-01

Power Supplies

Type	Model
Power Supply, 100-240 VAC, +24 VDC, M12 12-pin Socket	97-000012-01
Power Supply, 100-240 VAC, +24 VDC, M12 12-Pin Plug	97-000012-04

Note: Do not use the power supplies or power supply cords indicated in this catalog with any other electric or electronic equipment. When using the QX-870 Series, please use the power supply and power supply cord indicated in this catalog.

Mounting and Connectors

Type	Model
Mounting Plate Kit for QX-830 / QX-870	98-500006-01
Right Angle Mirror Kit for QX-830	98-200026-02
Mounting Arm / Adapter Kit for QX-830 / QX-870, 152 mm (6 inches)	98-000016-01
Mounting Arm Extension Kit for all code readers, 152 mm (6 inches)	98-000037-01
L-Bracket Kit for QX Series	98-000148-01
Mounting Stand Base Plate Kit	98-000054-01

Laser Barcode Reader QX-870 series

Ratings and Specifications

Applicable codes	Standard	Code 39, Codabar, Code 93, Interleaved 2 of 5, Code 128, PDF417, Micro PDF417, Pharmacode, UPC, GS1 Databar
	Application standards	UCC / EAN-128, AIAG
Reading performance	Mirror type	Rotating, 10-faceted
	Scan rate	Adjustable from 300 to 1,400 scans/s, default=500
	Scan width angle	60° (typ.)
	Pitch	±50° max.
	Skew	±40° max.
	Label contrast	25% min. absolute dark to light differential at 655 nm wavelength
Communications	Interface	RS-232 / 422 / 485 and / or Ethernet*
	Protocols	Point-to-Point, Point-to-Point w / RTS / CTS, Point-to-Point w / XON / XOFF, Point-to-Point w / RTS / CTS & XON / XOFF, Multidrop, Daisy Chain, User-Defined Multidrop, Ethernet TCP / IP, EtherNet / IP
I / O specifications	Input 1 / Trigger / New Master	Bi-directional optoisolated 4.5 to 28 V rated (13 mA at 24 VDC)
	Outputs (1, 2 & 3)	Optoisolated, 1 to 28 V rated, (I <sub>CE</sub> <100 mA at 24 VDC, current limited by user)
Power requirement		10 to 28 VDC, 200 mV p-p max. ripple, 270 mA at 24 VDC (typ.)
Laser light	Type	Laser diode
	Output wavelength	655 nm nominal
	Beam divergence	0.4 mrad (typ.)
	Pulse time	40 to 186 µs
	Maximum output	1.75 mW
	Operating life	50,000 hours at 25°C
	Safety class	Visible laser: IEC 60825-1 Class 2
Environmental specifications	Ambient temperature range	Operating: 0 to 50°C, Storage: -40 to 75°C
	Ambient humidity range	Up to 90% (with no icing or condensation)
	Degree of protection	IP65
Weight		Approx. 453 g
Dimensions		109 x 45 x 95 mm (H x D x W)
Safety standards		FCC, UL/c UL, CE, CB, KC, RCM, EAC, BIS
Material		Aluminum diecast

\* Depends on model. See Ordering Information for details.

Raster Mirror Performance

Raster sweep angle	Maximum sweeps per second
1 to 10°	80
11 to 20°	60
21 to 34° (max.)	40
35 to 36° (max.)	20

PIN ASSIGNMENTS\*

Connector A (Serial)  
*M12 12-pin plug*

Pin Assignment
1 Trigger
2 Power
3 Default
4 New Master
5 Output 1
6 Output 3
7 Ground
8 Input Common
9 Host RxD
10 Host TxD
11 Output 2
12 Output Common

Connector B (Serial)  
*M12 12-pin socket*

Pin Assignment
1 Trigger
2 Power
3 Terminated
4 Input 1
5 422 / 485 TxD (+)
6 422 / 485 RxD (+)
7 Ground
8 Input Common
9 TxD / RTS
10 RxD / CTS
11 422 / 485 TxD (-)
12 422 / 485 RxD (-)

Connector P / M (Serial)  
*M12 12-pin plug*

Pin Assignment
1 N / C
2 Power
3 N / C
4 N / C
5 422 / 485 TxD (+)
6 422 / 485 RxD (+)
7 Ground
8 N / C
9 N / C
10 N / C
11 422 / 485 TxD (-)
12 422 / 485 RxD (-)

Connector B (Ethernet)  
*M12 8-pin socket*

Pin Assignment
1 Terminated
2 Terminated
3 Terminated
4 TX (-)
5 RX (+)
6 TX (+)
7 Terminated
8 RX (-)

Connector T (Trigger)  
*M12 4-pin socket*

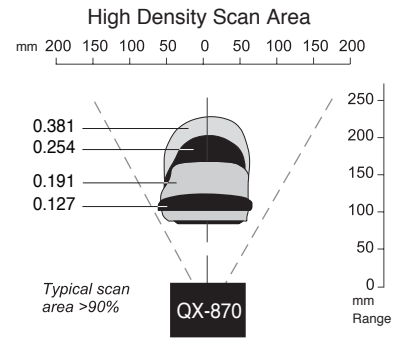
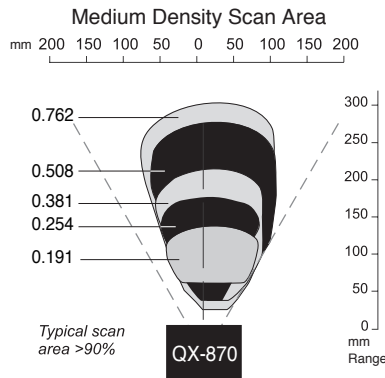
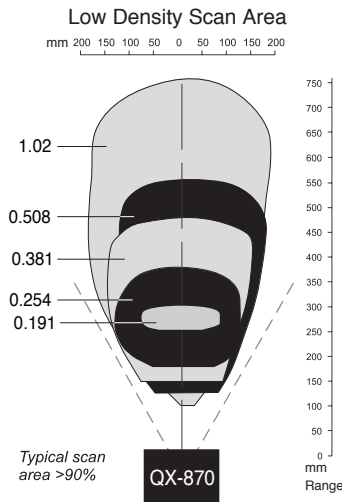
Pin Assignment
1 Power
2 Trigger
3 Ground
4 Input

\*Note: Detailed connector pinout information is available in the User's Manual.

Laser Barcode Reader QX-870 series

Read Ranges\*

(Unit: mm)



Narrow-bar-width	Read range
0.191 mm	254 to 305 mm
0.254 mm	178 to 381 mm
0.381 mm	152 to 483 mm
0.508 mm	127 to 558 mm
1.02 mm	102 to 762 mm

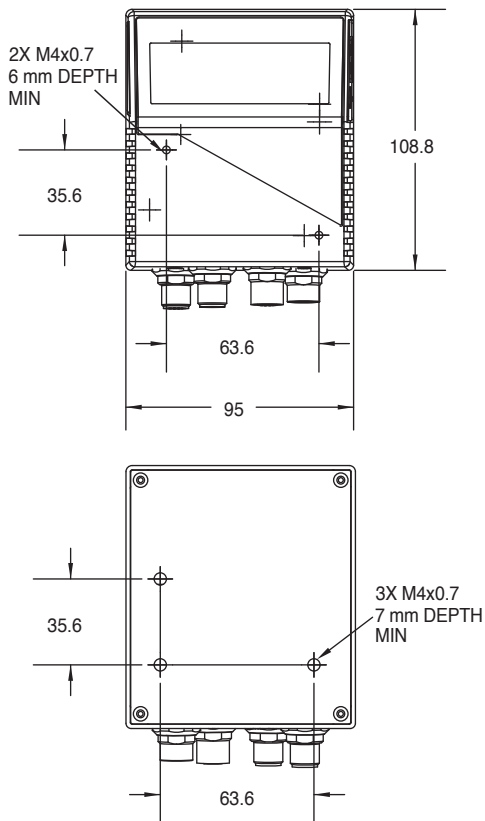
Narrow-bar-width	Read range
0.191 mm	64 to 140 mm
0.254 mm	38 to 178 mm
0.381 mm	38 to 216 mm
0.508 mm	38 to 280 mm
0.762 mm	25 to 304 mm

Narrow-bar-width	Read range
0.084 mm	Contact OMRON.
0.127 mm	102 to 127 mm
0.191 mm	89 to 171 mm
0.254 mm	82 to 203 mm
0.381 mm	82 to 228 mm

\* Ranges based on a Grade A, Code 39 label, at 500 scans per second. Data subject to change.

Dimensions

(Unit: mm)



Laser Label Indications

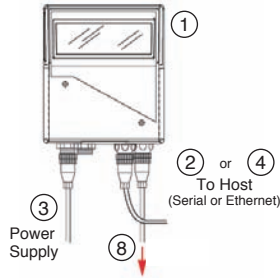
This warning label is attached to the laser barcode reader. Never remove this label or place objects in front of it.



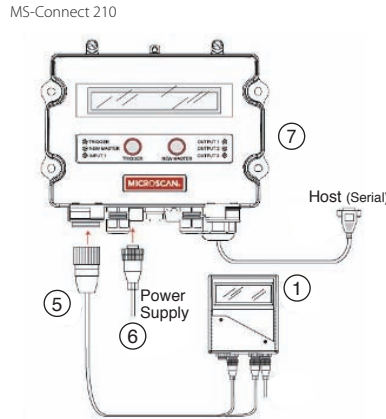
Laser Barcode Reader QX-870 series

System Configurations

Stand Alone Configurations



**Important:** Ethernet or Serial connectivity is reader dependent. See FISes for the appropriate reader model.

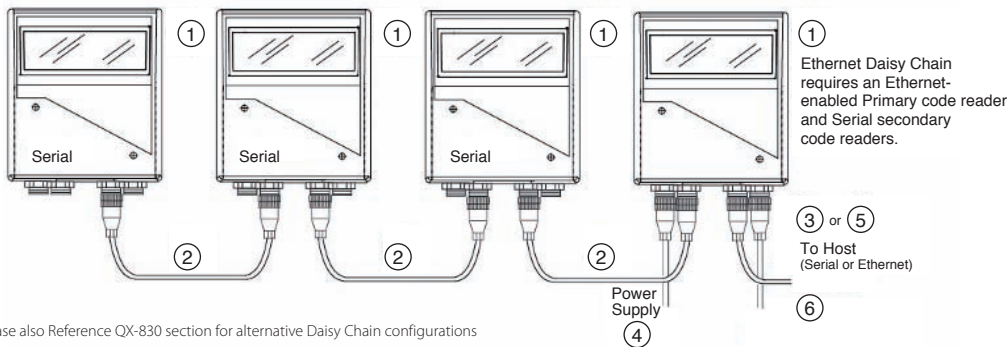


No.	Type	Model
1	QX-870 Laser Barcode Reader	FIS-0870-□□□□G
2	QX Cordset, Host, Serial, M12 12-Pin Plug (Screw-On)-to-DB-9 Socket, 1 m.	61-000152-02 <sup>*1</sup>
3	Power Supply, 100-240VAC, +24VDC, M12 12-Pin Socket	97-000012-01
4	QX Cordset, Host, Ethernet, M8 8-Pin Plug (Screw-On)-to-RJ45, 1 m.	61-000160-03 <sup>*1</sup>
5	QX Cordset, M12 12-Pin Plug & M12 12-Pin Socket-to-MS-Connect 210 (RS-232), 2 m.	61-000158-03
6	Power Supply, 100-240VAC, +24VDC, TRK 3-Pin, U.S. / Euro Plug)	97-000012-02
7	Connectivity Box	FIS-0210-0001G <sup>*2</sup>
8	Photoelectric Sensor, M12, 4-pin Plug, NPN output, Cable length 2m	99-9000016-01
-	Kit, 6 in. Mounting Arm / Adapter, QX-830, QX-870	98-000016-01
-	Kit, Mounting Stand Base Plate	98-000054-01

\*1. Cordsets available in multiple lengths

\*2. Refer to MS-Connection page for complete listing of MS-Connection 210 options

Daisy Chain Configurations



Please also Reference QX-830 section for alternative Daisy Chain configurations

No.	Type	Model
1	QX-870 Laser Barcode Reader	FIS-0870-□□□□G
2	QX Cordset, Common, M12 12-Pin Socket (Screw-On)-to-M12 12-Pin Plug (Screw-On), 1 m.	61-000162-02 <sup>*</sup>
3	QX Cordset, Host, Serial, M12 12-Pin Plug (Screw-On)-to-DB-9 Socket, 1 m.	61-000152-02 <sup>*</sup>
4	Power Supply, 100-240VAC, +24VDC, M12 12-Pin Socket	97-000012-01
5	QX Cordset, Host, Ethernet, M8 8-Pin Plug (Screw-On)-to-RJ45, 1 m.	61-000160-03 <sup>*</sup>
6	Photoelectric Sensor, M12, 4-pin Plug, NPN output, Cable length 2m	99-9000016-01
-	Kit, 6 in. Mounting Arm / Adapter, QX-830, QX-870	98-000016-01
-	Kit, Mounting Stand Base Plate	98-000054-01

\* Cordsets available in multiple lengths

Related Manuals

Man.No.	Model	Manual
84-000870	QX-870	Industrial Raster Scanner User's Manual



# Code Verification System

# LVS-9510 series

## Desktop Barcode Verification System



Comes with handheld top cover (not shown) to keep label in position on viewing window.

The LVS-9510 is a high-performance system for off-line verification of barcodes to ISO / IEC, ANSI, GS1, and UDI standards.

The LVS-9510 is unique in the world of ISO verification due to its ease of use and ability to verify linear (1D) and two-dimensional (2D) codes without any change of equipment. The system automatically determines the symbology and aperture needed to evaluate the code and identifies and highlights trouble spots.

The LVS-9510 offers a “stitching” feature that allows grading of barcodes that are larger than the field of view.

### LVS-9510: At a Glance

- Validates to ISO / IEC, ANSI, GS1, and UDI print quality standards.
- Software upgrade options include Multi-Sector for verification of multiple barcodes on a label.
- 21 CFR Part 11 compliant-ready.
- Certified by GS1 US.
- Supports 19 languages.
- Quality data reporting for auditing purposes.
- Manage operator permissions using LVS-95XX software or using Microsoft Active Directory.
- Includes NIST-Traceable Calibrated Conformance Standard Test Card for calibrating the system.
- Save verification reports to PDF.

#### ISO / ANSI for 1D

LVS-95XX series barcode verifiers inspect all nine ISO / ANSI parameters for linear (1D) barcodes, have the ability to identify blemishes, and can perform simple human-readable validation.

#### ISO / ANSI for 2D

The LVS-95XX series verifies 2D codes and reports all parameters as specified in the applicable symbology specification.

#### Software Upgrade: EAIV

The Enhanced Application Identifier Verification (EAIV) option verifies that all GS1 Application Identifiers, such as Expiration Date, Global Trade Item Number (GTIN), and Batch Number, embedded in the data structure of a GS1 barcode match the data programmed in the EAIV feature by the user.

#### User Permission Options

Manage permissions through LVS-95XX software: Passwords are stored in a local database. All passwords are encrypted, include an expiration date, and count failed password attempts.

#### Analytical Tools

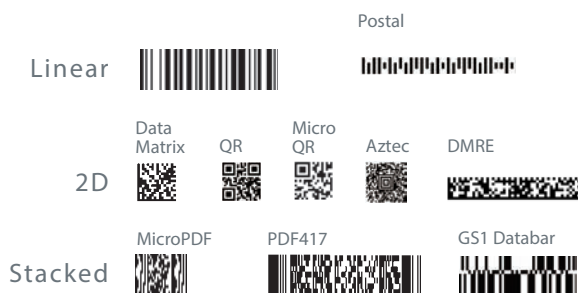
Equipped with numerous analytical tools to identify and evaluate barcode errors. Problems are color-coded to make problem solving easy.

#### Software

LVS-95XX software includes GS1 System Symbol Specification Tables. GS1 tables set standards for barcode data structure and how to maintain the quality of codes during barcode creation. OMRON Microscan offers an online training course on GS1 tables and how these apply to different organizations.

Manage permissions through Microsoft Active Directory: User privileges are based on Microsoft authentication and LVS-95XX permissions are assigned based on group membership.

### LVS-9510: Available Symbologies



Please see the Ratings and Specifications for a complete list of supported symbologies.

Multi Code Reader

Handheld Code Reader

Laser Barcode Reader

Code Verification System

Code Verification System LVS-9510 series

**Ordering Information**

**Code Verification Systems**

Type	Field of view	Model
LVS-9510 Verifier	76 mm	9510-5-3.0
	102 mm	9510-5-4.0
	114 mm	9510-5-4.5
	159 mm	9510-5-6.250

Note: Be sure to use the power supply and power supply cord included with the product.  
 In addition, do not use the power supplies or power supply cords with any other electric or electronic equipment.

**Accessories**

Type	Model
EAN / UPC Calibrated Conformance Test Card (Included with 9510-5-3.0 / 4.0 / 4.5 / 6 / 250)	98-CAL020
GS1-128 Calibrated Conformance Test Card (Included with 9510-5-6.250)	98-CAL021
LVS-9510 and LVS-958□ Software Upgrade Option: Multi-Sector Verification	98-SOF0039
LVS-95□□ Software Upgrade Option: Automatic Login Feature	98-SOF0056
Software Upgrade Option: EAIV (Enhanced Application Identifier Verification)	98-SOF0088
LVS-95□□ IQ-OQ Validation Procedure Guidelines, v. 4.3 and later (includes text cards)	98-LVS0077
Validation Test Cards (35 test cards)	98-LVS-VTC

Multi Code Reader

Handheld Code Reader

Laser Barcode Reader

Code Verification System

## Code Verification System LVS-9510 series

## Ratings and Specifications

Multi Code Reader	Supported standards	AIAG / DAMA / JAPIA / Odette
		ALDI
		ISO / IEC 29158 (DPM Cat 0)
		DHL
		FPMAJ
		French CIP
		GS1 General Specifications
		HDMA Guidelines
		Health Industry Barcode (HIBC)
		IFAH
		ISO / IEC 15415 / 15416
		Italian Pharmacode
		Japan Codabar
		Laetus Miniature Pharmacode
		Laetus Pharmacode
		Laetus Standard
		MIL-STD-130N Change 1
		Pharmacy Product Number (PPN)
		Automatic GS1 or ISO
		Handheld Code Reader
GS1 General Specifications		
GS1 (NTIN)		
HDMA Guidelines		
Miniature Pharmacode		
Postal (EIB, USPS IMB / Code 128, POSTNET, Japan Post)		
PPN Code		
PZN-big, normal, small (German Pharmacode)		
PZN 7 and PZN 8		
Laser Barcode Reader	ISO conformance standards	
		Data Matrix (ECC 200)
		EAN / UPC
		EAN / UPC and extended codes
		EAN / UPC with CC
		GS1 DataBar Omnidirectional
		ITF-14
		GS1 DataBar-14 with CC (formerly RSS-14 with CC)
		UCC / EAN with Supplementals
		UCC / EAN-128
Code Verification System	Supported symbolologies	UCC / EAN-128 with CC
		ISO / IEC 15415, 15416, 15418
		ISO / IEC 15426-1, 15426-2
		ISO / IEC 29158 (DPM Cat 0) / AIM DPM-1-2006
		ISO / IEC 21471: 2020
		All supported ISO / IEC symbology specifications
		Codabar
		Code 128, Code 39, Code 93
		GS1 DataBar Expanded and Limited
		DataBar
	DataBar Expanded and Limited	
	DataBar Omnidirectional	
	DataBar Stacked and Truncated	
	EAN / JAN-13	
	EAN / JAN-8	
	Enterprise Intelligent Barcode (EIB) 4-State (4SB)	
	GS1-128	
	Hanxin Code	
	HIBC	
	Interleaved 2 of 5 (ITF)	
ITF-14		
Japan Post		
MSI Plessey		
Pharmacode-Italian and Laetus		
PZN 7, PZN 8		
UPC-A, UPC-E		
USPS-128		
USPS Intelligent Mail Barcode (4-State Customer Barcode)		
Two-dimensional (2D) symbolologies	Aztec	
	DataBar with CC-A, CC-B, or CC-C	
	EAN / JAN-13 with CC-A, CC-B, or CC-C	
	EAN / JAN-8 with CC-A, CC-B, or CC-C	
	ECC-200 (Data Matrix)	
	• EIB CMDM	
	• French CIP	
	• GS1 Data Matrix	
	• NTIN and PPN	
	GS1-128 with CC-A, CC-B, or CC-C	
MaxiCode		
Micro QR Code		
MicroPDF417		
PDF417		
QR Code		
UPC-A with CC-A, CC-B, or CC-C		
UPC-E with CC-A, CC-B, or CC-C		
DMRE (ISO / IEC 21471: 2020)		

\* Contact OMRON for a complete list of supported ECC-200 (Data Matrix) codes.

CC=Composite Components

## Code Verification System LVS-9510 series

Minimum PC requirements (PC supplied by customer)		<ul style="list-style-type: none"> <li>• Windows® 7 Professional, Windows® 8.1 Pro, or Windows® 10 Pro</li> <li>• Intel® Core™ 2 Duo Processor or higher</li> <li>• 2 GB RAM</li> <li>• 800 x 600 screen resolution</li> <li>• One USB 2.0 port available per unit</li> </ul>
Camera		Monochrome 5 million pixels
Illumination		White LED, red filter (660 nm)
Environmental specifications	Ambient temperature range	Operating: 10 to 30°C, Storage: 0 to 40°C
	Ambient humidity range	Operating: 20% to 80% (with no icing or condensation), Storage: 20% to 95% (with no icing or condensation)
Communications		USB 2.0 A plug to B plug cable, 1.8 m
Power voltage		12 VDC at 2.5 A max.
Weight	Unpackaged standalone	Approx. 2.72 kg
	Shipping weight	Approx. 5.89 kg (Includes all items packaged in shipping box, such as power supply and cables)
Dimensions		279.4 x 228.6 x 279.4 mm (H x D x W) (Includes rubber feet on system base)
Top cover	Dimensions	139.7 x 190.5 mm
	Weight	Approx. 155.92 g
Safety standards		FCC, CE, UL, KC
Calibrated Conformance Test Card (Included with system)		<ul style="list-style-type: none"> <li>• Included with 9510-5-3.0: EAN / UPC Calibrated Conformance Standard Test Card</li> <li>• Included with 9510-5-4.0: EAN / UPC Calibrated Conformance Standard Test Card</li> <li>• Included with 9510-5-4.5: EAN / UPC Calibrated Conformance Standard Test Card</li> <li>• Included with 9510-5-6.250: GS1-128 Calibrated Conformance Standard Test Card</li> </ul>
Calibrated Conformance Test Card (Option)		<ul style="list-style-type: none"> <li>• EAN / UPC Calibrated Conformance Standard Test Card (Model: 98-CAL020)</li> <li>• GS1-128 Calibrated Conformance Standard Test Card (Model: 98-CAL021)</li> </ul>

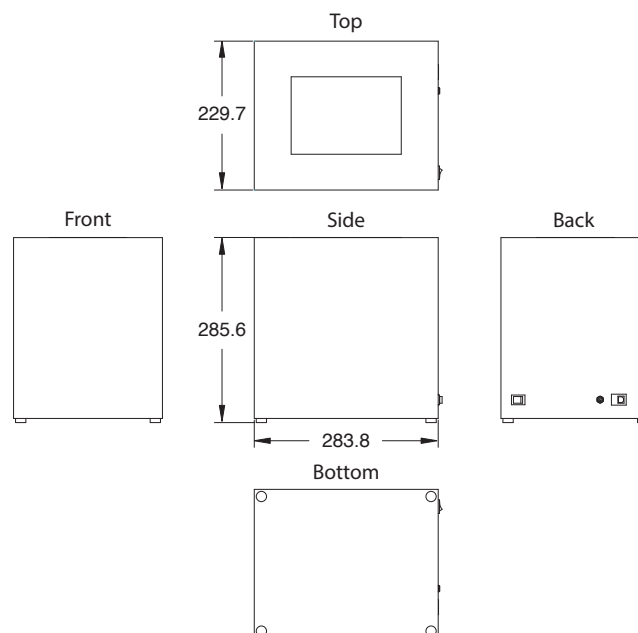
## Options

### Field of View Options

Model	Minimum X dimension (nominal)		Field of view (approximate)
	1D	2D	
9510-5-3.0	0.10 mm	0.15 mm	76 mm
9510-5-4.0	0.15 mm	0.23 mm	102 mm
9510-5-4.5	0.18 mm	0.25 mm	114 mm
9510-5-6.250	0.24 mm	0.33 mm	159 mm

## Dimensions

(Unit: mm)



### Related Manuals

Man.No.	Model	Manual
84-9310001-02	LVS-95□□	Barcode Quality Station Operations Manual
84-9310009-02	LVS-95□□	Software Installation Guide

# Code Verification System

## LVS-9585 series

### Portable Barcode Verification System



The LVS-9585 is a high-performance handheld solution for off-line barcode verification to ISO / IEC, ANSI, and GS1 standards. Featuring a high-resolution 5.0 megapixel camera, the LVS-9585 reads and analyzes linear (1D) and two-dimensional (2D) codes up to 76.19 mm wide and up to 57.15 mm tall. 1D and 2D direct part marks (DPM) of up to 44 mm x 44 mm can be verified to MIL-STD-130, ISO, and GS1 standards.

The LVS-9585 verifies multiple symbologies, including any combination of linear, 2D (Data Matrix, QR Code, and Aztec Code), and stacked linear (PDF417, MicroPDF, and Composite codes).

Powered by a 2.0 m USB 2.0 cable, the LVS-9585 verifies barcodes on a wide range of surfaces including plastics, PCBs, metal, cardboard, and shipping containers.

#### LVS-9585: At a Glance

- Verify a broad variety of direct part marks as well as 1D and 2D printed barcodes with a single model.
- Software automatically selects best lighting performance from integrated red or white dome and 30° angle lighting.
- Validates printed barcodes to ISO / IEC, ANSI, GS1, and UDI print quality standards.
- Validates direct part marks (DPM) to ISO, MIL-STD-130, and GS1 standards.
- Software options include Multi-Sector for verification of multiple barcodes and GS1 AI content check.
- 21 CFR Part 11 compliant-ready.
- Supports 19 languages.
- Export verification reports to Excel or SQL database.
- Save verification reports to PDF.
- Includes NIST-Traceable Calibrated Conformance Standard Test Card for calibrating the system.

#### LVS-9585: Available Symbologies



Please see Ratings and Specifications for a complete list of supported symbologies.

#### ISO/ANSI for 1D

LVS-95XX series barcode verifiers inspect all nine ISO and ANSI parameters for linear (1D) barcodes, have the ability to identify blemishes, and can perform simple human-readable validation.

#### ISO/ANSI for 2D

The LVS-95XX series verifies 2D codes and reports all parameters as specified in the applicable symbology specification.

#### Analytical Tools

Equipped with numerous analytical tools to identify and evaluate barcode errors. Problems are color-coded to make problem solving easy.

#### Software

LVS-95XX software includes GS1 System Symbol Specification Tables. GS1 tables set standards for barcode data structure and how to maintain the quality of codes during barcode creation. OMRON Microscan offers an onlinetraining course on GS1 tables and how these apply to different organizations.

#### Software Upgrade: EAIV

The Enhanced Application Identifier Verification (EAIV) option verifies that all GS1 Application Identifiers, such as Expiration Date, Global Trade Item Number (GTIN), and Batch Number, embedded in the datastructure of a GS1 barcode match the data programmed in the EAIV feature by the user.

#### User Permission Options

Manage permissions through LVS-95XX software: Passwords are stored in a local database. All passwords are encrypted, include an expiration date, and count failed password attempts.

Manage permission through Microsoft Active Directory: User privileges are based on Microsoft authentication and LVS-95XX permissions are assigned based on group membership.

#### Portability

Connects to the latest Windows OS tablets.

Multi Code Reader

Handheld Code Reader

Laser Barcode Reader

Code Verification System

Code Verification System LVS-9585 series

**Ordering Information**

**Code Verification Systems**

Type	Model
LVS-9585 Handheld 1D, 2D & DPM Barcode Verification, High Resolution	9585-DPM-HD
LVS-9585 Handheld 1D, 2D & DPM Barcode Verification, Red and White Light	9585-DPM

**Accessories**

Type	Model
EAN / UPC Calibrated Conformance Test Card	98-CAL020
GS1-128 Calibrated Conformance Test Card	98-CAL021
Data Matrix Calibrated Conformance Standard Test Card (for 9585-DPM-HD)	98-CAL022
LVS-9510 and LVS-958□ Software Upgrade Option: Multi-Sector Verification	98-SOF0039
LVS-95□□ Software Upgrade Option: Automatic Login Feature	98-SOF0056
Software Upgrade Option: EAIV (Enhanced Application Identifier Verification)	98-SOF0088
LVS-9580 Upgrade (1D / 2D to DPM)	98-SOF0095
LVS-95□□ IQ-OQ Validation Procedure Guidelines, v. 4.3 and later (includes text cards)	98-LVS0077
Validation Test Cards (35 test cards)	98-LVS-VTC

Multi Code Reader

Handheld Code Reader

Laser Barcode Reader

Code Verification System



## Code Verification System LVS-9585 series

## Ratings and Specifications

Multi Code Reader	Supported standards	AIAG / DAMA / JAPIA / Odette		
		ALDI		
		ISO / IEC 29158		
		DHL		
		FPMAJ		
		French CIP		
		GS1 General Specifications		
		HDMA Guidelines		
		Health Industry Barcode (HIBC)		
		IFAH		
		ISO / IEC 15415 / 15416		
		Italian Pharmacode		
		Japan Codabar		
		Laetus Miniature Pharmacode		
		Laetus Pharmacode		
		Laetus Standard		
		MIL-STD-130N Change 1		
		Pharmacy Product Number (PPN)		
		Automatic GS1 or ISO		
		GS1 (NTIN)		
		Miniature Pharmacode		
		Postal (EIB, USPS IMB / Code 128, POSTNET, Japan Post)		
		PZN-big, normal, small (German Pharmacode)		
		Handheld Code Reader	GS1 US certification	Data Matrix for Healthcare
				Data Matrix (ECC 200)
				EAN / UPC
				EAN / UPC and Extended Codes
	EAN / UPC with CC			
	GS1 DataBar Omnidirectional			
	ITF-14			
	GS1 DataBar-14 with CC (formerly RSS-14 with CC)			
	UCC / EAN with Supplementals			
	UCC / EAN-128			
UCC / EAN-128 with CC				
Laser Barcode Reader	ISO conformance standards			ISO / IEC 15415, 15416, 15418
		ISO / IEC 15426-1, 15426-2		
		ISO / IEC 29158(DPM Cat 0, 1, 2) / AIM DPM-1-2006		
		ISO / IEC 21471: 2020		
		All supported ISO / IEC symbology specifications		
Code Verification System	Supported symbologies	Codabar		
		Code 128, Code 39, Code 93		
		GS1 DataBar Expanded and Limited		
		DataBar		
		DataBar Expanded and Limited		
		DataBar Omnidirectional		
		DataBar Stacked and Truncated		
		EAN / JAN-13		
		EAN / JAN-8		
		Enterprise Intelligent Barcode (EIB) 4-State (4SB)		
		French CIP		
		GS1-128		
		Hanxin Code		
		HIBC		
		Interleaved 2 of 5 (ITF)		
		ITF-14		
		Japan Post		
		MaxiCode		
		MSI Plessey		
		Pharmacode-Italian and Laetus		
		PZN 7 and PZN 8		
		UPC-A and UPC-E		
		USPS-128		
		USPS Intelligent Mail Barcode (4-State Barcode)		
		Code Verification System	Two-dimensional (2D) symbologies	Aztec Code
				DataBar with CC-A, CC-B, or CC-C
				EAN / JAN-13 with CC-A, CC-B, or CC-C
	EAN / JAN-8 with CC-A, CC-B, or CC-C			
	ECC-200 (Data Matrix)			
	Enterprise Intelligent Barcode (EIB) Complex Mail Data Marks (CMDM)			
	GS1-128 with CC-A, CC-B, or CC-C			
	Micro QR Code			
	MicroPDF417			
PDF417				
QR Code				
UPC-A with CC-A, CC-B, or CC-C				
UPC-E with CC-A, CC-B, or CC-C				
DMRE (ISO / IEC 21471: 2020)				

\* Contact OMRON for a complete list of supported ECC-200 (Data Matrix) codes.

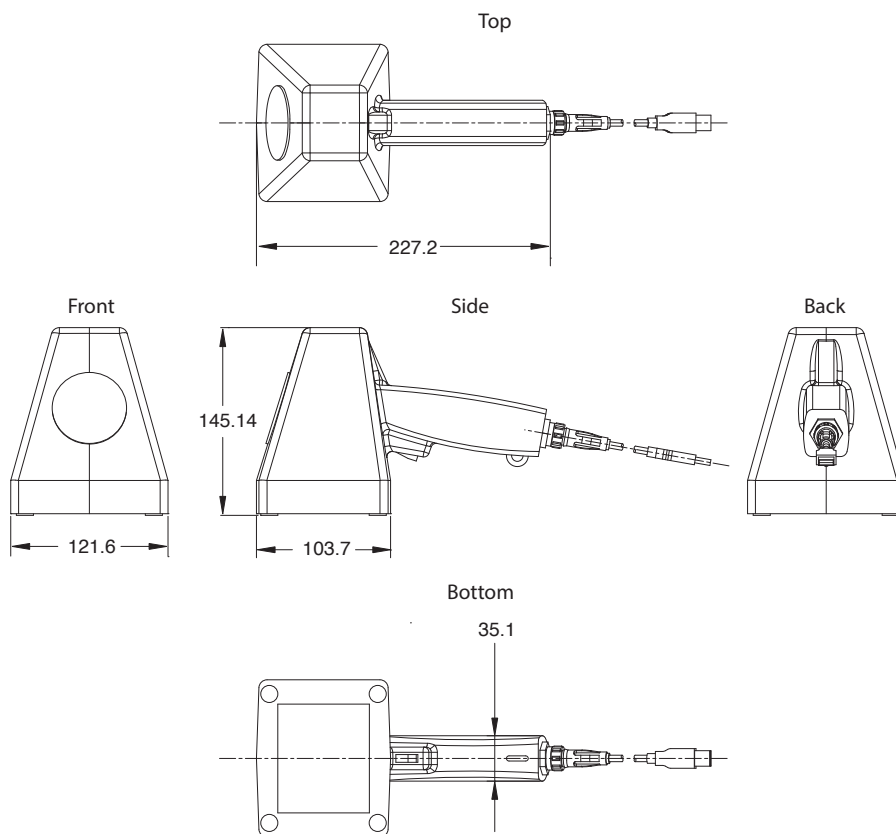
CC=Composite Components

Code Verification System LVS-9585 series

Minimum PC requirements (PC supplied by customer)		<ul style="list-style-type: none"> <li>• Windows®7 Pro SP1 or Windows®10 Pro</li> <li>• Intel® Core™ i3 or higher</li> <li>• 4 GB RAM</li> <li>• 800 x 600 screen resolution;</li> <li>• One USB 2.0 port available per unit</li> </ul>
Field of view	DPM (9585-DPM)	44 x 44 mm
	HD (9585-DPM-HD)	33 x 25 mm
Minimum cell size	DPM (9585-DPM)	1D = 4.0 mils (0.10 mm) 2D = 5.9 mils (0.15 mm)
	HD (9585-DPM-HD)	2D = 2.0 mils (0.05 mm)
Camera		5 million pixels
Illumination		Object distance: Contact Red dome (660 nm), white dome, 30° angle
Environmental specifications	Ambient temperature range	Operating: 4 to 46°C, Storage: -20 to 60°C
	Ambient humidity range	Operating: 20% to 80% (with no icing or condensation), Storage: 20% to 95% (with no icing or condensation)
Communications		USB 2.0 A plug to Mini-B plug cable, 2 m
Power supply		USB powered 5 VDC at 400 mA
Weight	Unpackaged standalone	Approx. 0.68 kg
	Shipping weight	Approx. 1.51 kg (Includes all cables and other items packaged in shipping box)
Dimensions		215.9 x 139.7 x 120.6 mm (H x D x W)
Calibrated Conformance Test Card (Included with system)		<ul style="list-style-type: none"> <li>• Included with 9585-DPM: EAN / UPC Calibrated Conformance Standard Test Card</li> <li>• Included with 9585-DPM-HD: Data Matrix Calibrated Conformance Standard Test Card</li> </ul>
Safety standards		FCC, CE, UL, KC, RCM

Dimensions

(Unit: mm)



Related Manuals

Man.No.	Model	Manual
84-9310001-02	LVS-95□□	Barcode Quality Station Operations Manual
84-9310009-02	LVS-95□□	Software Installation Guide

# Code Verification System

# LVS-9580 series

## Portable Barcode Verification System

Durable, portable handheld verifier



Weights only 0.64kg

### LVS-9580: At a Glance

- Stitching feature to grade barcodes larger than the field of view.
- Ideal for multiple line production and warehouse environments.
- Validates printed barcodes to ISO / IEC, ANSI, GS1, and UDI print quality standards.
- Validates direct part marks (DPM) to ISO, MIL-STD-130, and GS1 standards.
- Software upgrade options include Multi-Sector for verification of multiple barcodes on a label.
- 21 CFR Part 11 compliant-ready.
- Supports 19 languages.
- Quality data reporting for auditing purposes.
- Includes NIST-Traceable Calibrated Conformance Standard Test Card for calibrating the system.
- Save verification reports to PDF.

### LVS-9580: Available Symbologies



Please see the Ratings and Specifications for a complete list of supported symbologies.

The LVS-9580 is a high-performance handheld solution for off-line barcode verification to ISO / IEC, ANSI, GS1, and UDI standards. Featuring a high-resolution 5.0 megapixel camera, the LVS-9580 reads and analyzes linear (1D) and two-dimensional (2D) codes up to 76.19 mm wide and up to 57.15 mm tall. 1D and 2D direct part marks (DPM) of up to 44 mm x 44 mm can be verified to MIL-STD-130, ISO, and GS1 standards.

The LVS-9580 verifies multiple symbologies, including any combination of linear, 2D (Data Matrix, QR Code, and Aztec Code), and stacked linear (PDF417, MicroPDF, and Composite codes).

Powered by a 2.0 m USB 2.0 cable, the LVS-9580 verifies barcodes on a wide range of surfaces including plastics, PCBs, metal, cardboard, and shipping containers.

#### ISO/ANSI for 1D

LVS-95XX series barcode verifiers inspect all nine ISO and ANSI parameters for linear (1D) barcodes, have the ability to identify blemishes, and can perform simple human-readable validation.

#### ISO/ANSI for 2D

The LVS-95XX series verifies 2D codes and reports all parameters as specified in the applicable symbology specification.

#### Analytical Tools

Equipped with numerous analytical tools to identify and evaluate barcode errors. Problems are color-coded to make problem solving easy.

#### Software

LVS-95XX software includes GS1 System Symbol Specification Tables. GS1 tables set standards for barcode data structure and how to maintain the quality of codes during barcode creation. OMRON Microscan offers an online training course on GS1 tables and how these apply to different organizations.

#### Software Upgrade: EAIV

The Enhanced Application Identifier Verification (EAIV) option verifies that all GS1 Application Identifiers, such as Expiration Date, Global Trade Item Number (GTIN), and Batch Number, embedded in the data structure of a GS1 barcode match the data programmed in the EAIV feature by the user.

#### User Permission Options

Manage permissions through LVS-95XX software: Passwords are stored in a local database. All passwords are encrypted, include an expiration date, and count failed password attempts.

Manage permissions through Microsoft Active Directory: User privileges are based on Microsoft authentication and LVS-95XX permissions are assigned based on group membership.

#### Portability

Connects to the latest Windows OS tablets.

Multi Code Reader

Handheld Code Reader

Laser Barcode Reader

Code Verification System

Code Verification System LVS-9580 series

Ordering Information

Code Verification Systems

Type	Model
LVS-9580 Handheld 1D & 2D Barcode Verification	9580-C-3
LVS-9580 Handheld 1D, 2D & DPM Barcode Verification	9580-DPM
LVS-9580 Handheld 1D, 2D & DPM Barcode Verification, High Resolution	9580-DPM-HD

Accessories

Type	Model
EAN / UPC Calibrated Conformance Test Card	98-CAL020
GS1-128 Calibrated Conformance Test Card	98-CAL021
Data Matrix Calibrated Conformance Standard Test Card (for 9580-DPM-HD)	98-CAL022
LVS-9510 and LVS-9580 Software Upgrade Option: Multi-Sector Verification	98-SOF0039
LVS-9500 Software Upgrade Option: Automatic Login Feature	98-SOF0056
Software Upgrade Option: EAIV (Enhanced Application Identifier Verification)	98-SOF0088
LVS-9580 Upgrade (1D / 2D to DPM)	98-SOF0095
LVS-9500 IQ-OQ Validation Procedure Guidelines, v. 4.3 and later (includes text cards)	98-LVS0077
Validation Test Cards (35 test cards)	98-LVS-VTC

Ratings and Specifications

Supported standards	Application standards	AIAG / DAMA / JAPIA / Odette
		ALDI
		ISO / IEC 29158
		DHL
		FPMAJ
		French CIP
		GS1 General Specifications
		HDMA Guidelines
		Health Industry Barcode (HIBC)
		IFAH
		ISO / IEC 15415 / 15416
		Italian Pharmacode
		Japan Codabar
		Laetus Miniature Pharmacode
		Laetus Pharmacode
		Laetus Standard
		MIL-STD-130N Change 1
		Pharmacy Product Number (PPN)
		Automatic GS1 or ISO
		GS1 (NTIN)
	Miniature Pharmacode	
	Postal (EIB, USPS IMB / Code 128, POSTNET, Japan Post)	
	PZN-big normal small (German Pharmacode)	
	GS1 (NTIN)	Data Matrix for Healthcare
		Data Matrix (ECC 200)
		EAN / UPC
		EAN / UPC and Extended Codes
		EAN / UPC with CC
		GS1 DataBar Omnidirectional
		ITF-14
		GS1 DataBar-14 with CC (formerly RSS-14 with CC)
		UCC / EAN with Supplementals
		UCC / EAN-128
	UCC / EAN-128 with CC	
	ISO conformance standards	ISO / IEC 15415, 15416, 15418
		ISO / IEC 15426-1, 15426-2
		ISO / IEC 29158 (DPM Cat 0) / AIM DPM-1-2006
		ISO / IEC 21471: 2020
		All supported ISO/IEC symbology specifications

Multi Code Reader

Handheld Code Reader

Laser Barcode Reader

Code Verification System

## Code Verification System LVS-9580 series

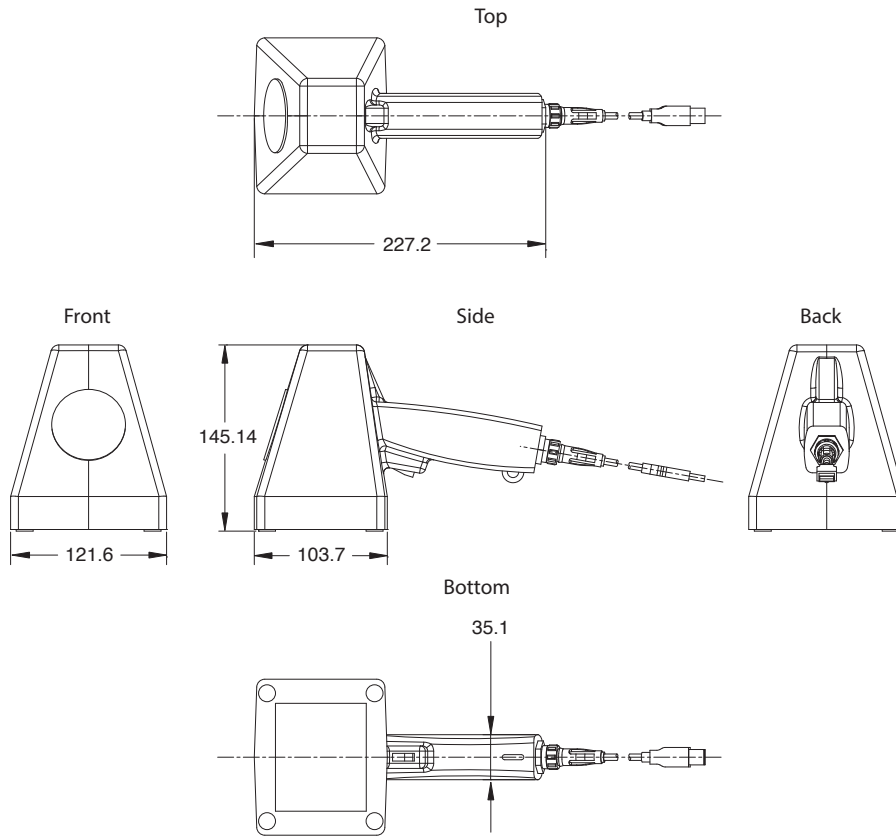
Multi Code Reader	Supported symbologies	Linear (1D) symbologies	Codabar Code 128 Code 39 Code 93 GS1 DataBar Expanded and Limited DataBar DataBar Expanded and Limited DataBar Omnidirectional DataBar Stacked and Truncated EAN / JAN-13 EAN / JAN-8 Enterprise Intelligent Barcode (EIB) 4-State (4SB) French CIP GS1-128 Hanxin Code HIBC Interleaved 2 of 5 (ITF) ITF-14 Japan Post MaxiCode MSI Plessey Pharmacode-Italian and Laetus PZN 7 and PZN 8 UPC-A and UPC-E USPS-128 USPS Intelligent Mail Barcode (4-State Barcode)
		Two-dimensional (2D) symbologies	Aztec Code DataBar with CC-A, CC-B, or CC-C EAN / JAN-13 with CC-A, CC-B, or CC-C EAN / JAN-8 with CC-A, CC-B, or CC-C ECC-200 (Data Matrix) Enterprise Intelligent Barcode (EIB) Complex Mail Data Marks (CMDM) GS1-128 with CC-A, CC-B, or CC-C Micro QR Code MicroPDF417 PDF417 QR Code UPC-A with CC-A, CC-B, or CC-C UPC-E with CC-A, CC-B, or CC-C DMRE (ISO / IEC 21471: 2020)
Handheld Code Reader	Minimum PC requirements (PC supplied by customer)		<ul style="list-style-type: none"> <li>• Windows®7 Pro SP1 or Windows®10 Pro</li> <li>• Intel® Core™ i3 or higher</li> <li>• 4 GB RAM</li> <li>• 800 x 600 screen resolution</li> <li>• One USB 2.0 port available per unit</li> </ul>
Laser Barcode Reader	Field of view	Standard (9580-C-3)	76.19 mm horizontal 57.15 mm vertical
		DPM (9580-DPM)	44 x 44 mm
		HD (9580-DPM-HD)	33 x 25 mm
Minimum cell size	Standard (9580-C-3)	1D = 4.0 mils (0.10 mm)	
	DPM (9580-DPM)	2D = 5.9 mils (0.15 mm)	
	HD (9580-DPM-HD)	2D = 2.0 mils (0.05 mm)	
Camera		5 million pixels	Object distance: Contact
Illumination		Red dome (660 nm)	
Environmental specifications	Ambient temperature range	Operating: 4 to 46°C, Storage: -20 to 60°C	
	Ambient humidity range	Operating: 20% to 80% (with no icing or condensation), Storage: 20% to 95% (with no icing or condensation)	
Communications		USB 2.0 A plug to Mini-B plug cable, 2 m	
Power supply		USB powered 5 VDC at 400 mA	
Weight	Unpackaged standalone	Approx. 0.64 kg	
	Shipping weight	Approx. 1.81 kg (includes all cables and other items packaged in shipping box)	
Dimensions		215.9 x 139.7 x 120.6 mm (H x D x W)	
Calibrated Conformance Test Card (Included with system)		<ul style="list-style-type: none"> <li>• Included with 9580-C-3: EAN / UPC Calibrated Conformance Standard Test Card</li> <li>• Included with 9580-DPM: EAN / UPC Calibrated Conformance Standard Test Card</li> <li>• Included with 9580-DPM-HD: Data Matrix Calibrated Conformance Standard Test Card</li> </ul>	
Safety standards		FCC, CE, UL, KC, RCM	

\* Contact OMRON for a complete list of supported ECC-200 (Data Matrix) codes.

CC=Composite Components

Dimensions

(Unit: mm)



Multi Code Reader

Handheld Code Reader

Laser Barcode Reader

Code Verification System

Related Manuals

Man.No.	Model	Manual
84-9310001-02	LVS-95□□	Barcode Quality Station Operations Manual
84-9310009-02	LVS-95□□	Software Installation Guide



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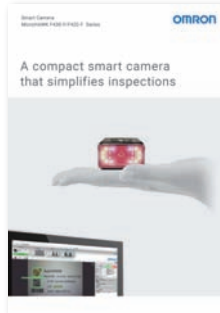
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