OMRON

# Code Reader Group Catalog

# 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


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.

### 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.

### 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

# 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

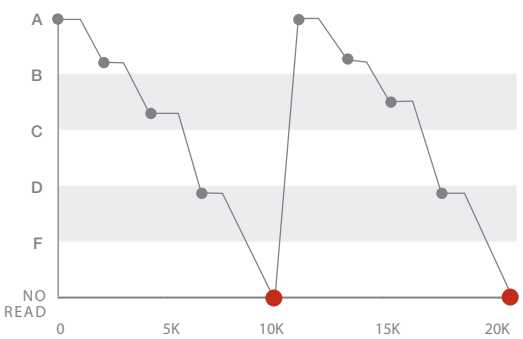
- Comply with symbol quality industry standards and directives
- Maximize efficiency of your manufacturing process
- Control quality in real time as you verify the output from your printer or code marking equipment
- Minimize returned goods due to bad labels
- Increase customer satisfaction
- Produce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

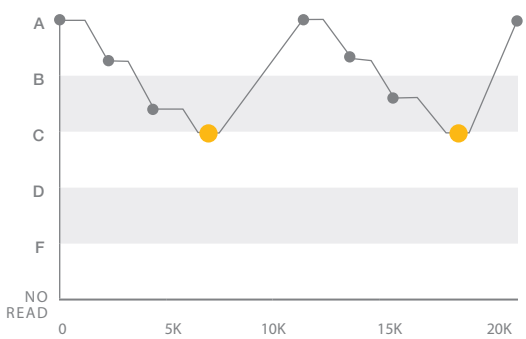
Barcode Quality Over Time:
Using a Reader to Check Quality




Number of Parts Marked / Labeled

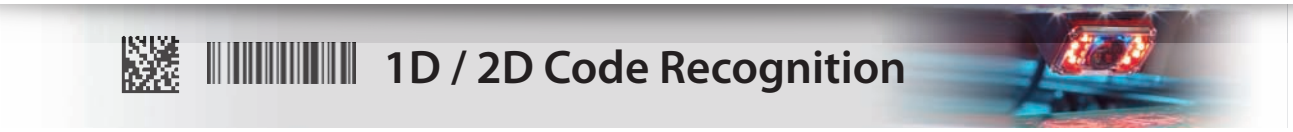
## WITH VERIFICATION

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




Number of Parts Marked / Labeled

# 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.

| | MicroHAWK V430-F series | MicroHAWK V420-F series | MicroHAWK V330-F series | MicroHAWK V320-F series | C-Mount Code Reader V440-F |
|---|---|---|---|---|---|
| Autofocus | Yes | Yes | No | No | No |
| IP Rating | IP65 | IP54 | IP40 | IP40 | IP40 |
| Connectivity | RS-232C<br>Ethernet TCP / IP<br>EtherNet / IP™<br>PROFINET | RS-232C<br>USB<br>Ethernet Via USB | Ethernet TCP / IP<br>EtherNet / IP™<br>PROFINET | RS-232C<br>Ethernet Via USB | RS-232C<br>Ethernet TCP / IP<br>EtherNet / IP™<br>PROFINET |
| Light | Built-in, expanded, external strobe signal | Built-in, expanded, external strobe signal | Built-in | Built-in | No |
| | P.6 | P.20 | P.30 | P.36 | P.42 |

### 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.

**HS-360X series**

Ultra-Rugged Direct Part Mark Handheld Reader


**V410-H series**

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

| | HS-360X series | V410-H series |
|---|---|---|
| IP Rating | IP65/67 | IP52 |
| Wired or Wireless | Wired or Wireless | Wired |
| Light | Warm White LEDs and Red LEDs | XD: Warm White LEDs<br>SR: Red LEDs |
| X-Mode Decode *2 Algorithms | ✓ | XD: ✓<br>SR: - |
| Connectivity | USB1.1, RS-232 | USB, RS-232 |
| | P.50 | P.56 |

*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.64 P.70 P.76

# 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<br>DPM: 44 × 44 mm<br>DPM-HD: 33 × 33 mm |

P.82 P.86, 90

Auto Focus Multi Code Reader

# MicroHAWK V430-F series

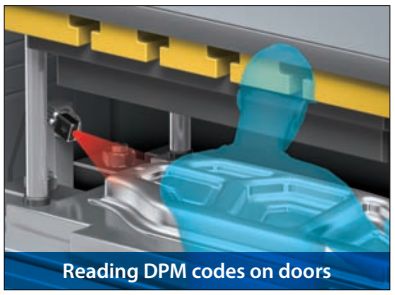
## Auto Focus Multi Code Reader


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.

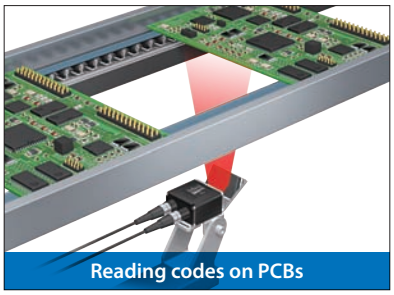
Refer to the V430-F series datasheet (Cat. No. Q274) for details.

## Easy to integrate

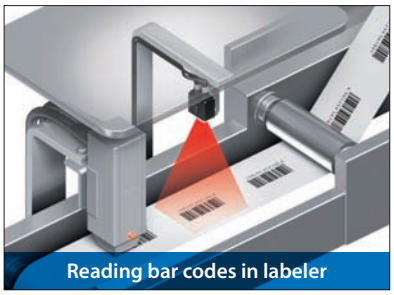
**Application in automotive industry**




**Application in digital industry**




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

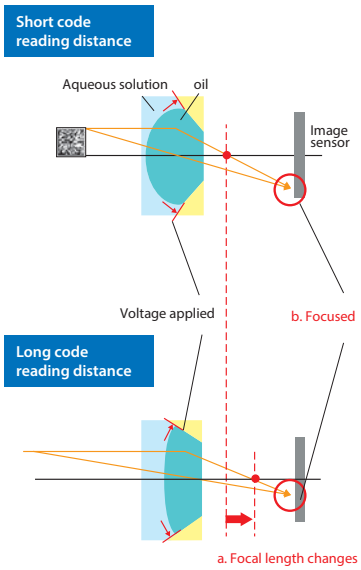


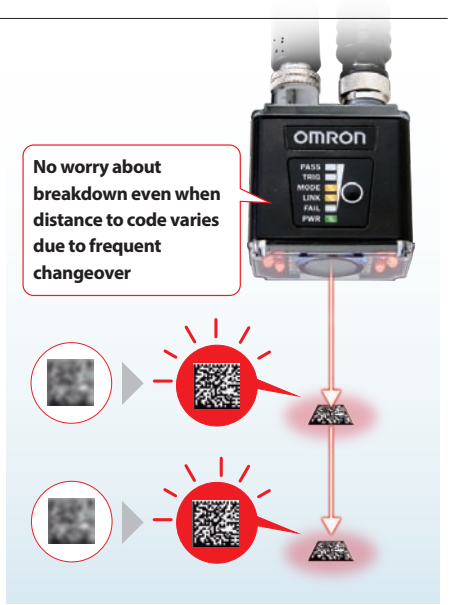

## Long life autofocus

### 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 fiexibly 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)



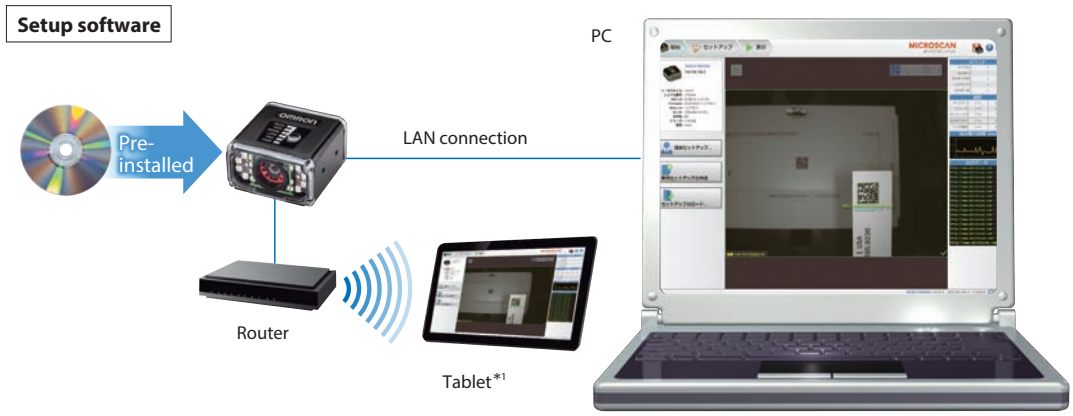



Auto Focus Multi Code Reader MicroHAWK V430-F series

## Easy troubleshooting

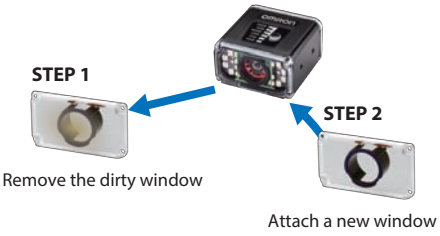
### Quick troubleshooting from web browser

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<br>ISO/IEC 15416<br>ISO/IEC TR29158<br>(AIM DPM -1-2006) *2<br>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 |

### 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 |

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 |

## 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 V4□0-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** |

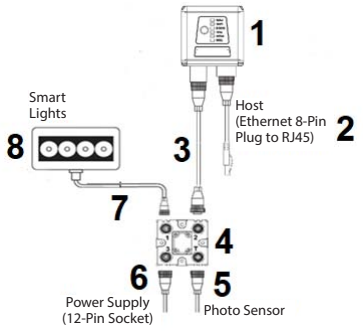
## Lighting Options (V430-F Ring Light Kits)

| 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** |

# Auto Focus Multi Code Reader MicroHAWK V430-F series



## Wiring Options



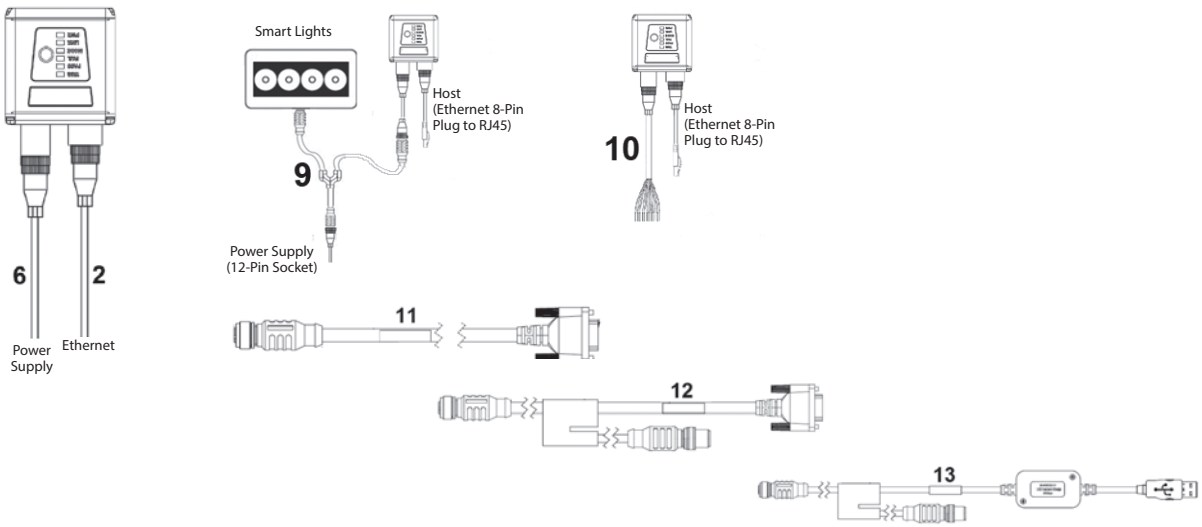

| Drawing Reference | Category | Length / Spec | Model |
|---|---|---|---|
| 2 | Ethernet Communication Cables – Straight Connectors M12 Plug on Camera to RJ45 Connector | 1 Meter | **V430-WE-1M** |
| | | 3 Meters | **V430-WE-3M** |
| | | 5 Meters | **V430-WE-5M** |
| | Ethernet Communication Cables – 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.

**Right angle up**

**Right angle down**

## Alternate Wiring Options



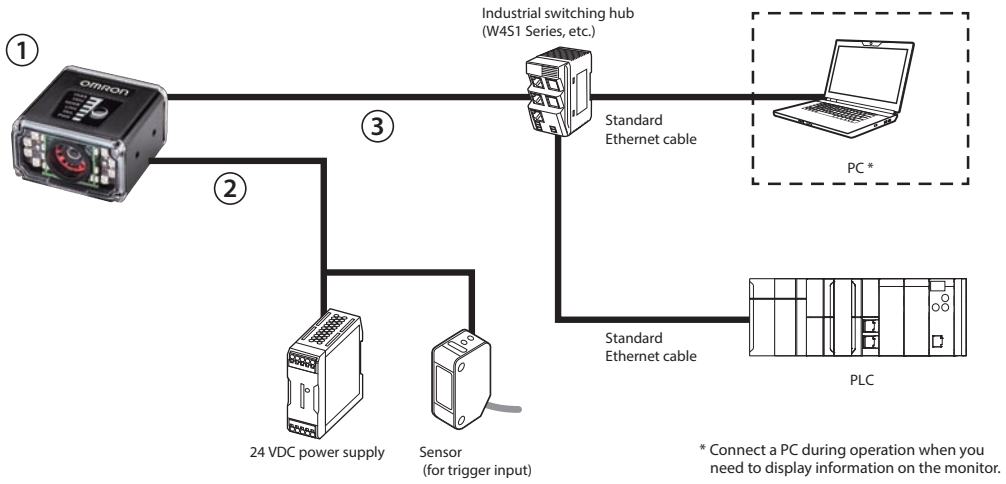

| Drawing Reference | Category | Length / Spec | Model |
|---|---|---|---|
| **9** | Y Cable, Camera/Power and Smart Light Power (Continuous On) | 1 Meter | **61-9000135-01** |
| | Y Cable, Camera/Power and Smart Light Strobe Control | 1 Meter | **61-9000137-01** |
| **10** | M12 to Flying Leads Cable, 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** |

Auto Focus Multi Code Reader MicroHAWK V430-F series

## System Configurations

### Ethernet (TCP / IP, EtherNet/IP, PROFINET)

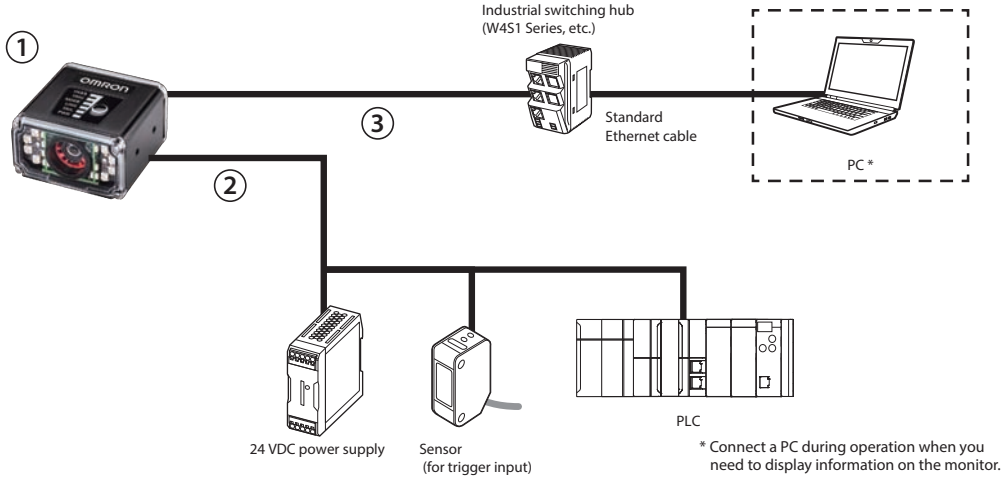
Input commands and output results via Ethernet.
Triggers can be input using the V430-W8 Cable.




| No. | Type | Model |
|---|---|---|
| 1 | Auto Focus Multi Code Reader | V430-F□□□□□□□□-□□□ |
| 2 | I/O cable (Flying Leads Cable) | V430-W8□□□-□M |
| 3 | Ethernet cable | V430-WE□□-□M |

### I/O interface

Input triggers and output judgment results via I/O.



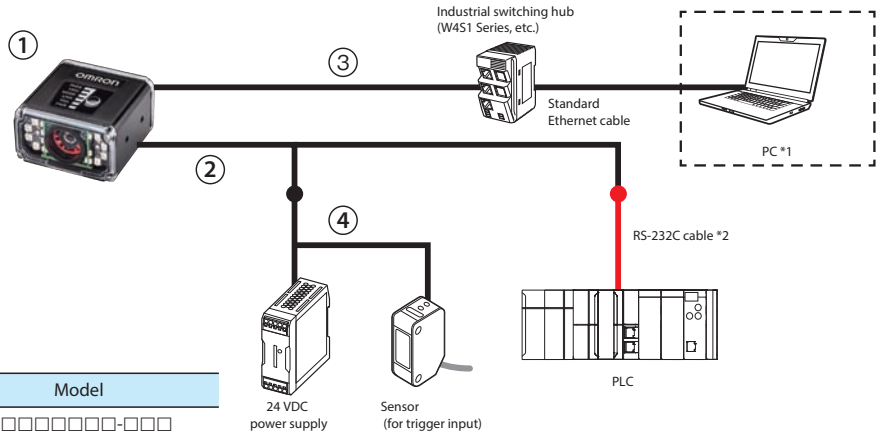

| No. | Type | Model |
|---|---|---|
| 1 | Auto Focus Multi Code Reader | V430-F□□□□□□□□-□□□ |
| 2 | I/O cable (Flying Leads Cable) | V430-W8□□□-□M |
| 3 | Ethernet cable | V430-WE□□-□M |

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.

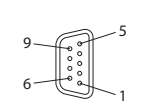



| No. | Type | Model |
|---|---|---|
| 1 | Auto Focus Multi Code Reader | V430-F□□□□□□□-□□□ |
| 2 | Camera to QX-1 Interconnect Cables with RS-232 Breakout | V430-WQR-□M |
| 3 | Ethernet cable | V430-WE□□-□M |
| 4 | I/O cable (Flying Leads Cable) | V430-W8□□□-□M |

*1. Connect a PC during operation when you need to display information on the monitor.
*2. When connecting Omron's CS/CJ/NJ Controller, check the connector shape and signal lines (pin assignment) before preparing the cable.
Connect the V430-WQR Cable directly to Omron's NX Machine Automation Controller or a PC. No RS-232C cable is required.

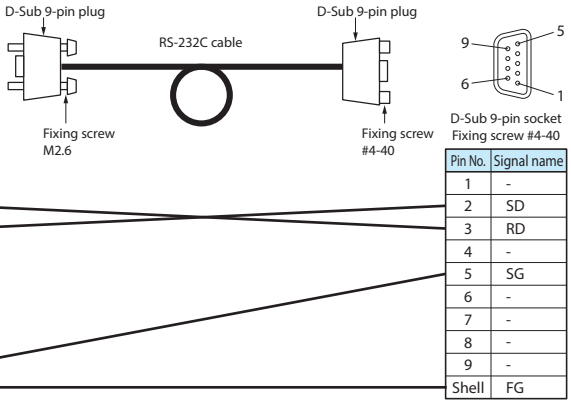
### Wiring of RS-232C cable (Connecting CS/CJ/NJ Controller)

**CS1W-SCB/SCU**
**CJ1W-SCU**




D-Sub 9-pin socket
Fixing nut M2.6

| Pin No. | Signal name |
|---|---|
| 1 | FG |
| 2 | SD |
| 3 | RD |
| 4 | RS |
| 5 | CS |
| 6 | 5V |
| 7 | DR |
| 8 | ER |
| 9 | SG |
| Shell | FG |




**V430-WQR-□**

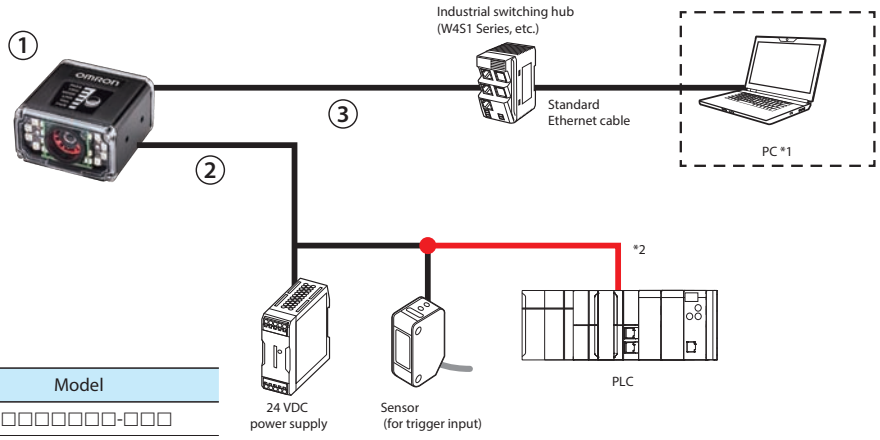



D-Sub 9-pin socket
Fixing screw #4-40

| Pin No. | Signal name |
|---|---|
| 1 | - |
| 2 | SD |
| 3 | RD |
| 4 | - |
| 5 | SG |
| 6 | - |
| 7 | - |
| 8 | - |
| 9 | - |
| Shell | FG |

### 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□□□-□M |
| 3 | Ethernet cable | V430-WE□□-□M |

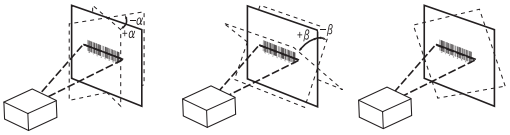
*1. Connect a PC during operation when you need to display information on the monitor.
*2. Check the connector shape and signal lines (pin assignment) before preparing the V430-W8 Cable.

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 | Outer LEDs: 8 Red or White; 24 Red or White for V430-F□□□□12M-R□□ | Outer LEDs: 8 White |
| | Reading Distance / Field of View | Refer to *Read Ranges* 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 | | DC 24V (Ambient voltage range: DC 5 to 30 V) *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 | Approx. 68 g | | |
| | Packaging Weight | Approx. 174 g (including packing) | | |
| Dimensions | Main Body Dimensions | 44.5 (W) × 44.5 (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<br>FCC Part 15, Subpart B (Class B) UL60950-1<br>BIS, RCM, KC<br>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.

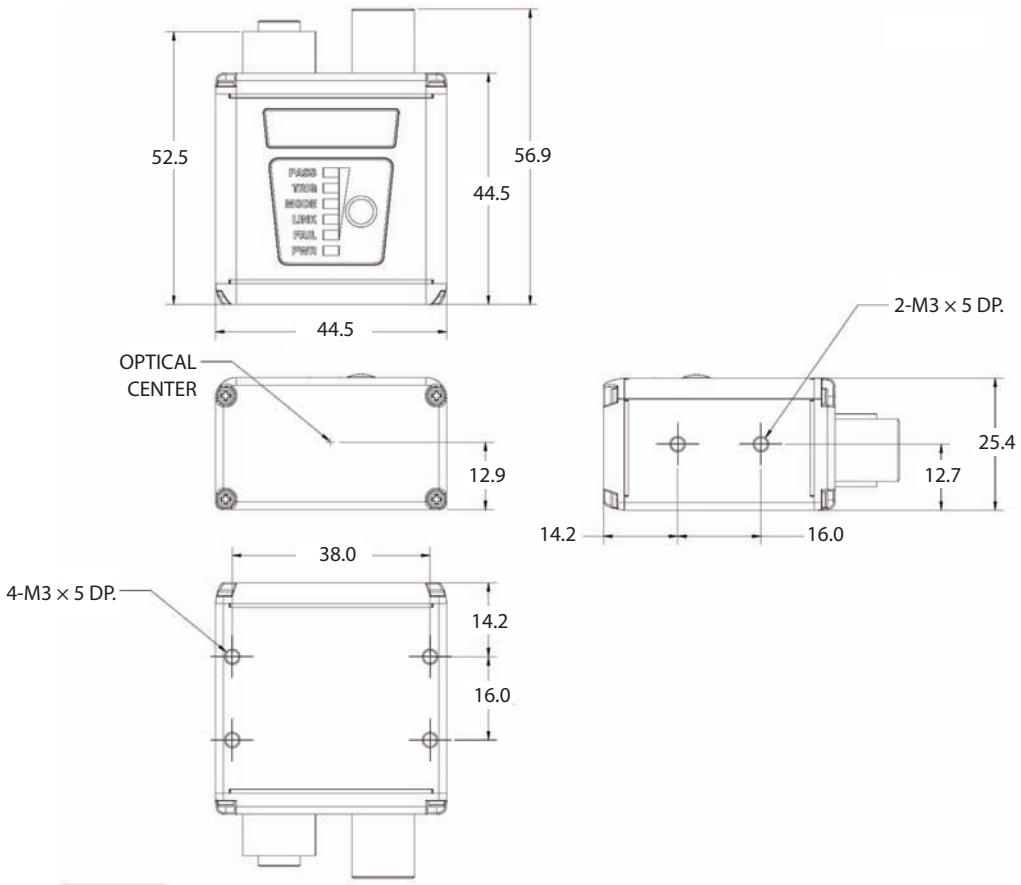
Auto Focus Multi Code Reader MicroHAWK V430-F series

## Dimensions

(Unit: mm)

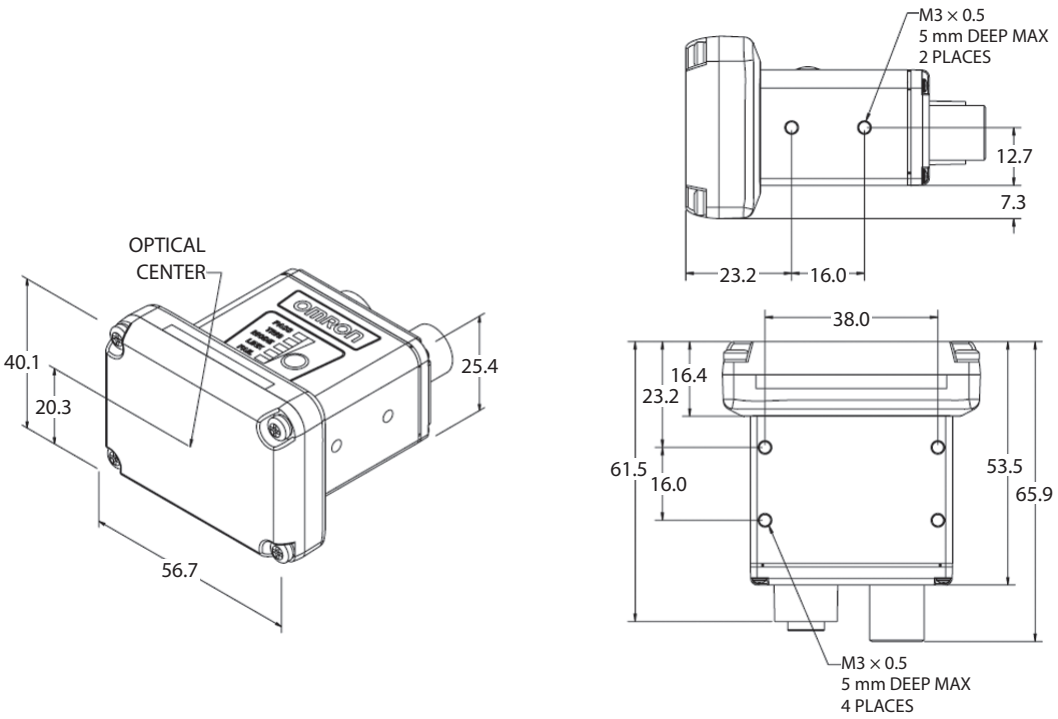
### Code Reader

**V430-F**




### Code Reader

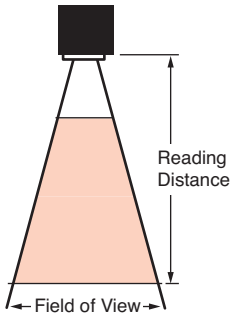
**V430-F with Alternate Optics and Illumination**



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

| | 0.3 MP | | 1.2 MP | | 5 MP | |
|---|---|---|---|---|---|---|
| Distance (mm) | 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

| | 0.3 MP | | 1.2 MP | | 5 MP | |
|---|---|---|---|---|---|---|
| Distance (mm) | 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

| | 0.3 MP | | 1.2 MP | | 5 MP | |
|---|---|---|---|---|---|---|
| Distance (mm) | 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

| | 0.3 MP | | 1.2 MP | | 5 MP | |
|---|---|---|---|---|---|---|
| Distance (mm) | 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

| | 0.3 MP | | 1.2 MP | | 5 MP | |
|---|---|---|---|---|---|---|
| Distance (mm) | 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

| | 0.3 MP | | 1.2 MP | | 5 MP | |
|---|---|---|---|---|---|---|
| Distance (mm) | 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)

| | 0.3 MP | | 1.2 MP | | 5 MP | |
|---|---|---|---|---|---|---|
| Distance (mm) | 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**
- a.) V420-F Monochrome Fixed Focus Camera
- b.) V420-F Color Fixed Focus Camera
- c.) V420-F 1.2 MP Monochrome Fixed Focus Camera with Narrow Lens

**2. Autofocus Camera**
- a.) V420-F 0.3 MP Monochrome Autofocus Camera (50 -300 mm)
- b.) V420-F 1.2 MP Monochrome Autofocus Camera (50 – 300 mm for Wide and Medium Lens, 40 – 150 mm for Narrow Lens)
- c.) V420-F Color Autofocus Camera (50 - 300 mm)
- d.) 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 |

## 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 |

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** |

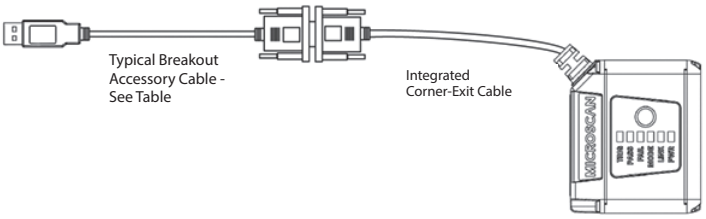
## Lighting Options

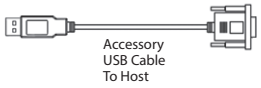
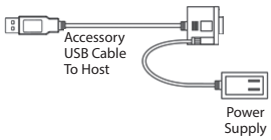
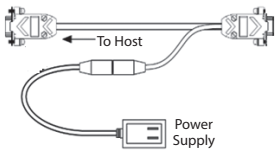
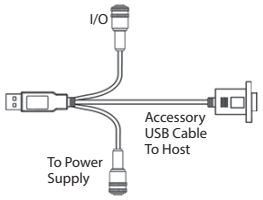
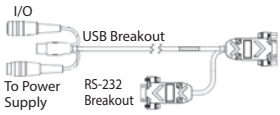
| Type | Model |
|---|---|
| Red Light Installation Kit | **V430-ALR** |
| White Light Installation Kit | **V430-ALW** |
| Blue Light Installation Kit | **V430-ALB** |
| IR Light Installation Kit | **V430-ALI** |

Auto Focus Multi Code Reader MicroHAWK V420-F series



## Wiring Options



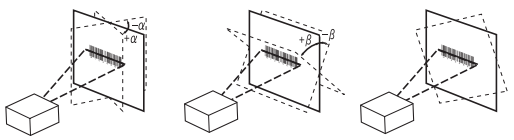

| Appearance | Category | Length / Spec | Model |
|---|---|---|---|
|   | USB Breakout Cable | 1 Meter | **V420-WUB-1M** |
|   | Cable – USB Breakout with External Power Input | 1 Meter | **V420-WUX-1M** |
| | Power Supply | 2 Meters | **97-9000006-01** |
| | Kit – Cable and Power Supply | - | **V420-AC1** |
|   | 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** |

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 | Outer LEDs: 8 Red or White | Outer LEDs: 8 White |
| | Reading Distance / Field of View | Refer to *Read Ranges* 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 @ 5 VDC); 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<br>FCC Part 15, Subpart B (Class B) UL60950-1<br>BIS, RCM, KC<br>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

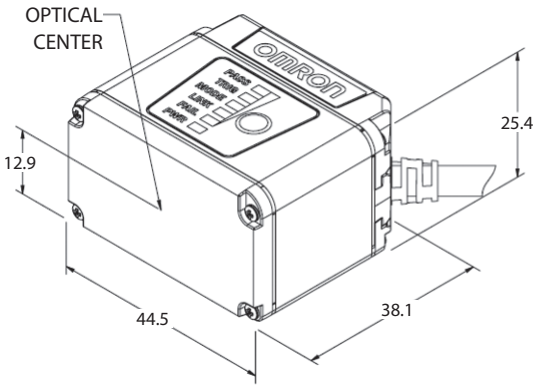


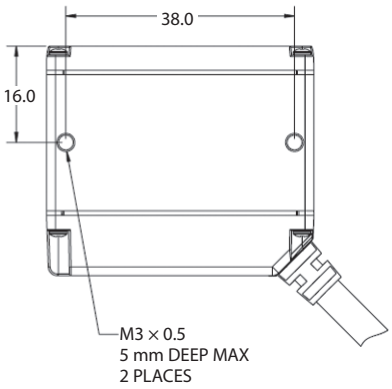

*4. In an electrically noisy environment, use only the V430-F in combination with a noise filter cable (V430-W□F-□M) to ensure proper operation.

Auto Focus Multi Code Reader MicroHAWK V420-F series

## Dimensions

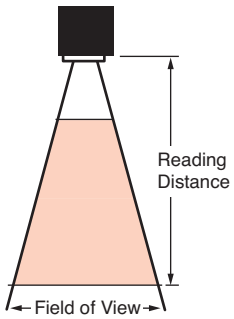
(Unit: mm)




## Read Ranges

Read range specifications are subject to change.




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

| | 0.3 MP | | 1.2 MP | | 5 MP | |
|---|---|---|---|---|---|---|
| Distance (mm) | 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

| | 0.3 MP | | 1.2 MP | | 5 MP | |
|---|---|---|---|---|---|---|
| Distance (mm) | 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 |

Auto Focus Multi Code Reader MicroHAWK V420-F series

## Read Ranges

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

| | 0.3 MP | | 1.2 MP | | 5 MP | |
|---|---|---|---|---|---|---|
| Distance (mm) | 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

| | 0.3 MP | | 1.2 MP | | 5 MP | |
|---|---|---|---|---|---|---|
| Distance (mm) | 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

| | 0.3 MP | | 1.2 MP | | 5 MP | |
|---|---|---|---|---|---|---|
| Distance (mm) | 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

| | 0.3 MP | | 1.2 MP | | 5 MP | |
|---|---|---|---|---|---|---|
| Distance (mm) | 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 |

Auto Focus Multi Code Reader MicroHAWK V420-F series



**Long Range Autofocus Field of View (mm)**

| | 0.3 MP | | 1.2 MP | | 5 MP | |
|---|---|---|---|---|---|---|
| Distance (mm) | 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 |

## MEMO

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 |

## 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

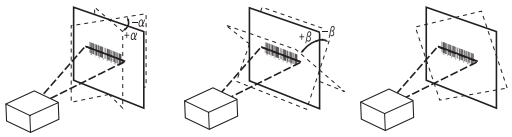
| Type | Length | Model |
|---|---|---|
| Power Over Ethernet (PoE) Single Port Injector | N/A | **V330-AP1** |
| Standard Ethernet Cables, In-Cabinet Use; Standard RJ45 Connectors on Both Ends; Green | 1 Meter | **XS6W-5PUR8SS100CM-G** |
| | 3 Meters | **XS6W-5PUR8SS300CM-G** |
| | 5 Meters | **XS6W-5PUR8SS500CM-G** |
| | 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** |

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 | Outer LEDs: None | Outer LEDs: None |
| | Reading Distance / Field of View | Refer to *Read Ranges* 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/s2, 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) × 63 (D) × 24 (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<br>FCC Part 15, Subpart B (Class B) UL60950-1<br>BIS<br>RCM, KC, EAC and BSMI Pending | | |
| 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

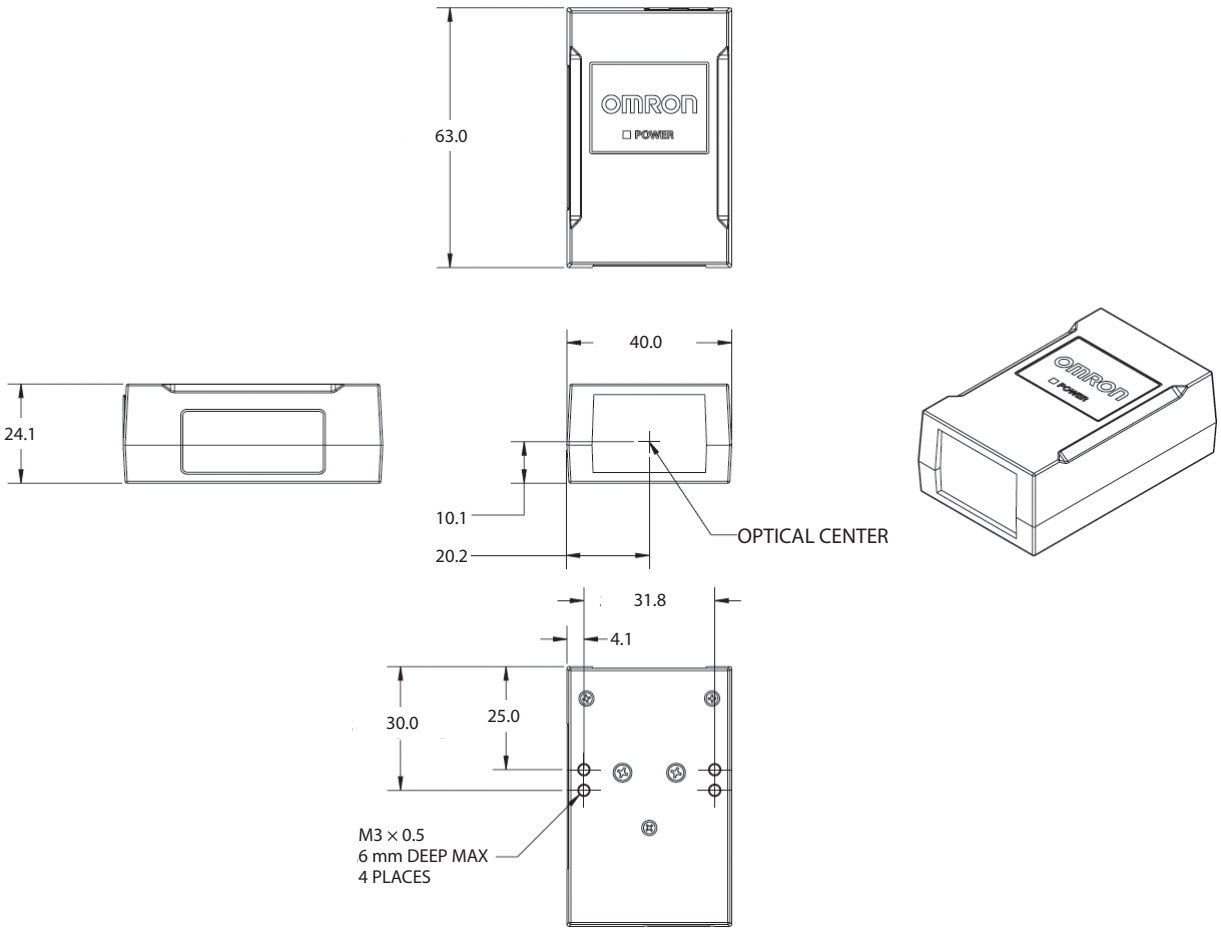



*4. In an electrically noisy environment, use only the V430-F in combination with a noise filter cable (V430-W□F-□M) to ensure proper operation.

Multicode Reader MicroHAWK V330-F series

## Dimensions

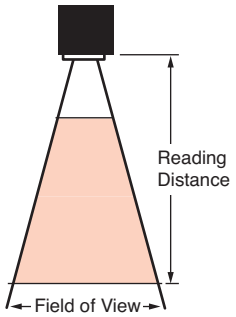
(Unit: mm)



Multicode Reader MicroHAWK V330-F series

## Read Ranges

Read range specifications are subject to change.




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

| | 0.3 MP | | 1.2 MP | | 5 MP | |
|---|---|---|---|---|---|---|
| Distance (mm) | 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

| | 0.3 MP | | 1.2 MP | | 5 MP | |
|---|---|---|---|---|---|---|
| Distance (mm) | 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

| | 0.3 MP | | 1.2 MP | | 5 MP | |
|---|---|---|---|---|---|---|
| Distance (mm) | 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 |

## MEMO

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 |

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

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

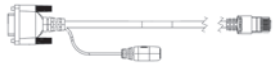
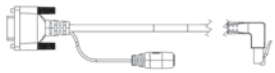
### V320-F[XXX]N[ZZZ]-NN[P]

| 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<br>Straight | 2 Meters | **V320-WRX-2M** |
|  | RJ50 to RS-232 and External Power<br>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<br>Straight | 3 Meters | **V320-W8-3M** |
|  | RJ50 to Flying Leads<br>Right Angle to the Right * | 3 Meters | **V320-W8LR-3M** |

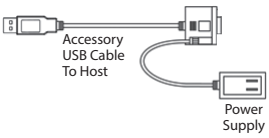
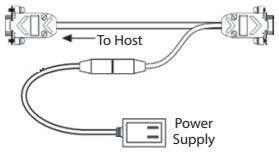
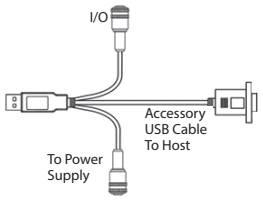
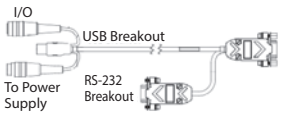
* Right angle cables.

**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<br>RJ50 to DB-15 | 1 Meter | **V320-WR-1M** |
|  | Adapter V/F320-F to all V420-F Cable Accessories<br>Right Angle to the Right*<br>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.

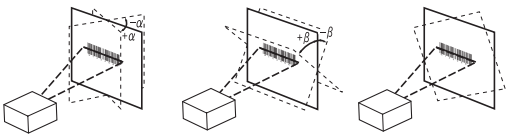
**Right angle to the right**

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 | Outer LEDs: None | Outer LEDs: None |
| | Reading Distance / Field of View | Refer to *Read Ranges* 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/s2, 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) × 39 (D) × 24 (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<br>FCC Part 15, Subpart B (Class B) UL60950-1<br>BIS<br>RCM, KC, EAC and BSMI Pending | | |
| 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

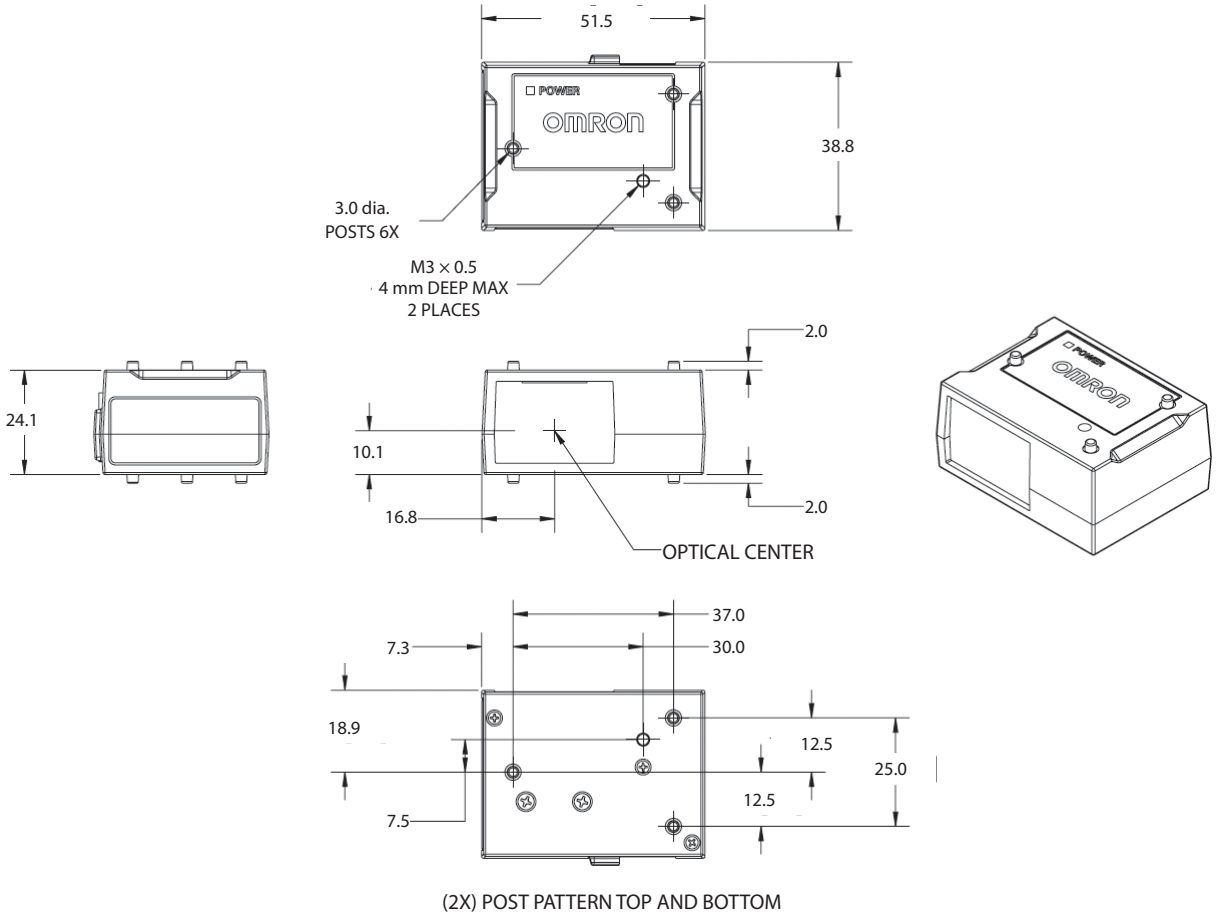



*4. In an electrically noisy environment, use only the V430-F in combination with a noise filter cable (V430-W□F-□M) to ensure proper operation.

Multicode Reader MicroHAWK V320-F series

## Dimensions

(Unit: mm)

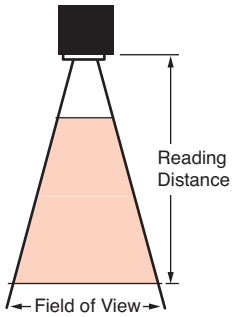



(2X) POST PATTERN TOP AND BOTTOM

Multicode Reader MicroHAWK V320-F series

## Read Ranges

Read range specifications are subject to change.




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

| | 0.3 MP | | 1.2 MP | | 5 MP | |
|---|---|---|---|---|---|---|
| Distance (mm) | 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

| | 0.3 MP | | 1.2 MP | | 5 MP | |
|---|---|---|---|---|---|---|
| Distance (mm) | 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

| | 0.3 MP | | 1.2 MP | | 5 MP | |
|---|---|---|---|---|---|---|
| Distance (mm) | 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

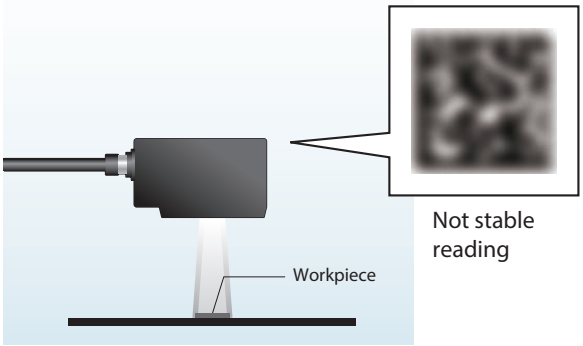
## C-Mount Code Reader

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.

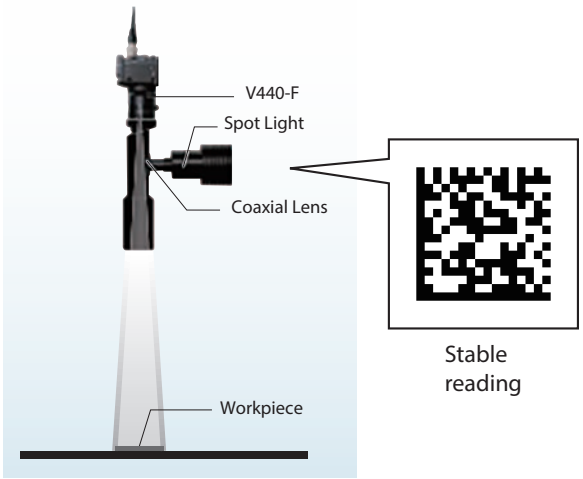
Refer to the V440-F series datasheet (Cat. No. Q342) for details.

### 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.



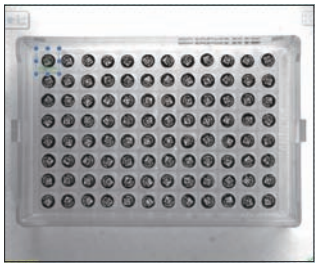
5-Megapixel C-Mount Code Reader V440-F

## Intuitive easy multi-code reading setting

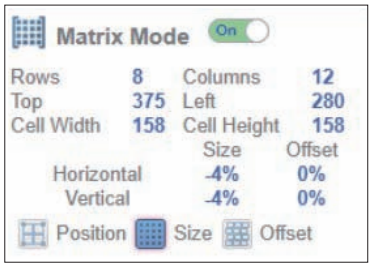
### Matrix mode NEW

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

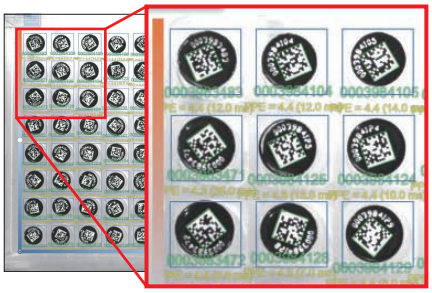
**Step.1 Select region**



**Step.2 Choose your matrix**




**Setting complete!**

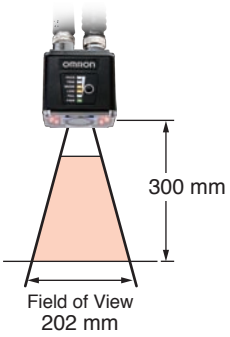


## Compact size with long distance solution leads to you easy to integrate with robot assembly solution

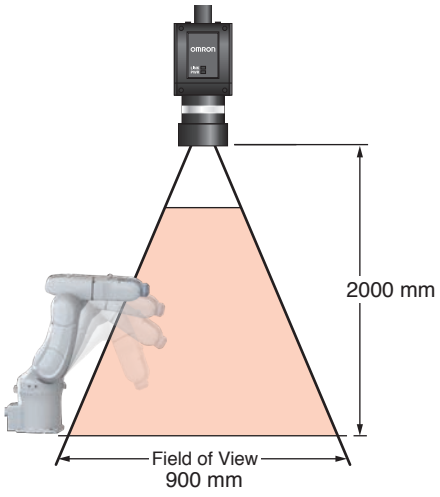
### Compact design with POE


### 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-FXXXY50M-NNP** |
| V440-F, No Optics, 5 MP, Mono, No Light, X-Mode *2 | **V440-FXXXY50M-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<br>M12 Socket to M12 Plug<br>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<br>M12 Socket to M12 Plug<br>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<br>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** |
| M12 to Flying Leads Cable, with Power Filter | | **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<br>12-Pin Socket | 1 Meter<br>US/Euro Plug | **97-000012-01** |
| Reader to QX-1 Interconnect Cables with USB Keyboard Wedge Breakout | 2.7 Meters | **V430-WQK-3M** |

*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** |

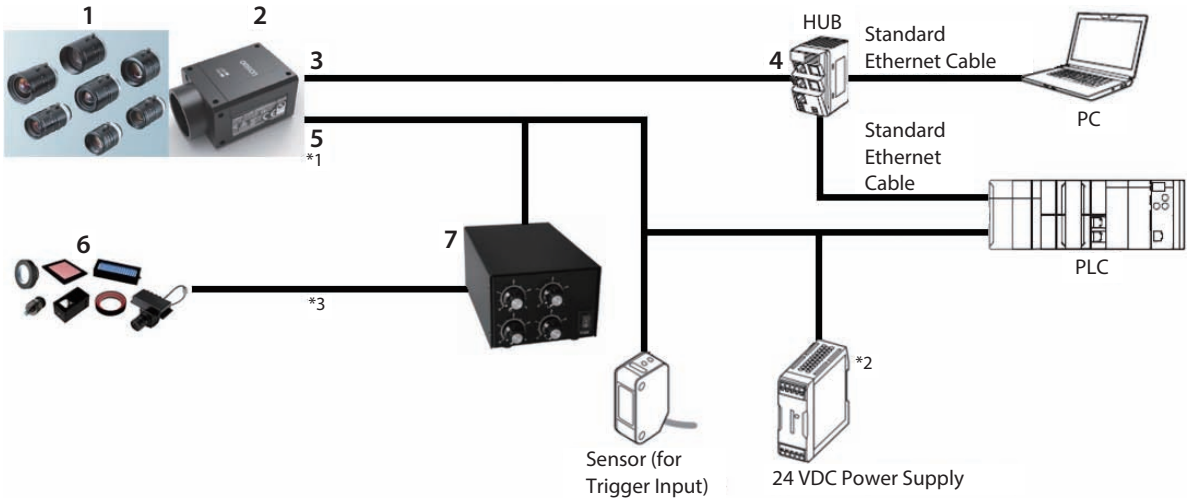
## Other Accessories

| 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

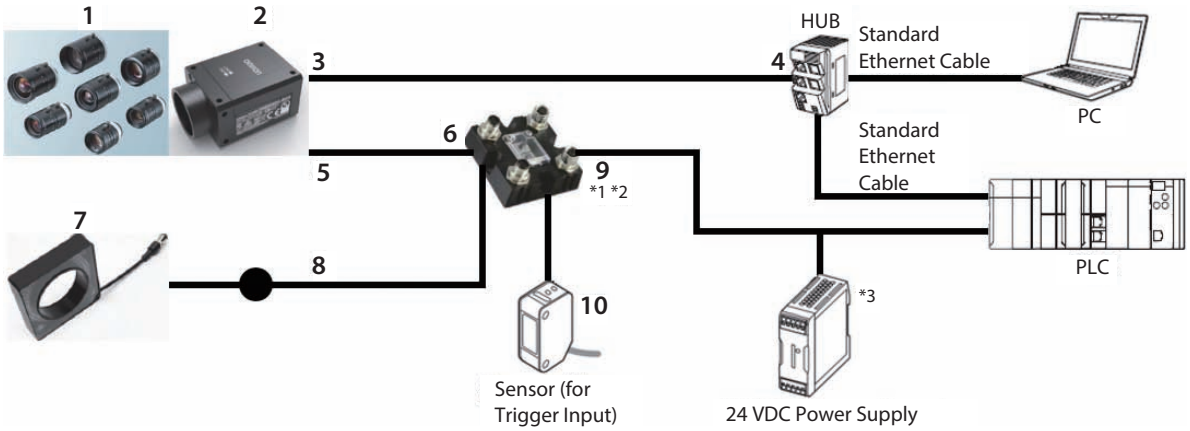
### FLV Series or Other External Lighting




| No. | Category | Model |
|---|---|---|
| 1 | C-Mount Lens | 3Z4S-□□, 98-9000□□□-01 |
| 2 | V440-F C-Mount 5 MP Camera | V440-FXXXY50M-NN□ |
| 3 | Industrial High-Flex GigE Ethernet Cable with Jack Screws and RJ45 Connector | 98-00013□-0□ |
| 4 | PoE (Power over Ethernet) | Select a cable that can supply power via Ethernet. |
| | Industrial Switching HUB | Example: W4S1-□□□ Series |
| 5 | M12-to-Flying Leads Cable | V430-W8□□□-□M |
| 6 | FLV Lighting | FLV-□ |
| 7 | Lighting Controller | FLV-ATC□, 3Z4S-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



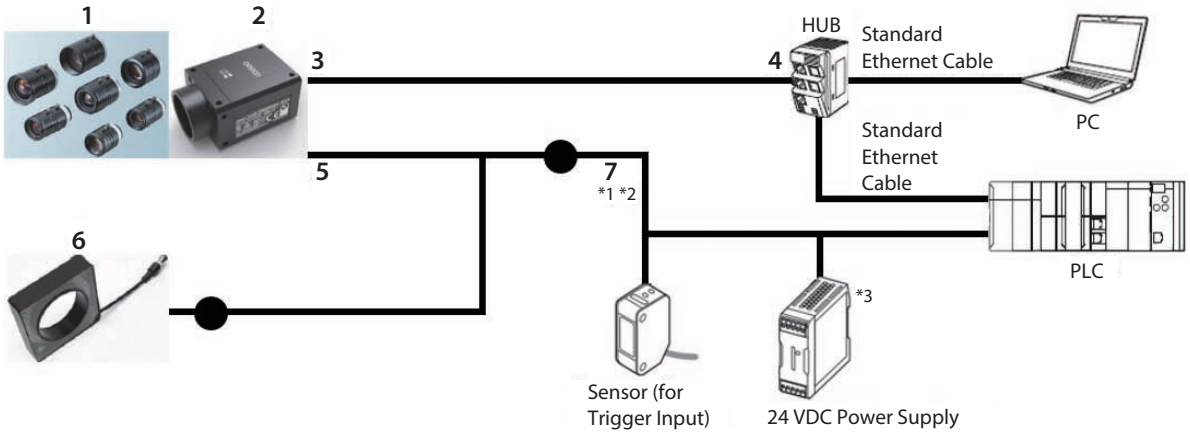

| No. | Category | Model |
|---|---|---|
| 1 | C-Mount Lens | 3Z4S-□□, 98-9000□□□-01 |
| 2 | V440-F C-Mount 5 MP Camera | V440-FXXXY50M-NN□ |
| 3 | Industrial High-Flex GigE Ethernet Cable with Jack Screws and RJ45 Connector | 98-00013□-0□ |
| 4 | PoE (Power over Ethernet) | Select a cable that can supply power via Ethernet. |
| | Industrial Switching HUB | Example: W4S1-□□□ 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.

# 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-FXXXY50M-NN□ |
| 3 | Industrial High-Flex GigE Ethernet Cable with Jack Screws and RJ45 Connector | 98-00013□-0□ |
| 4 | PoE (Power over Ethernet) | Select a cable that can supply power via Ethernet. |
| | Industrial Switching HUB | Example: W4S1-□□□ 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 |

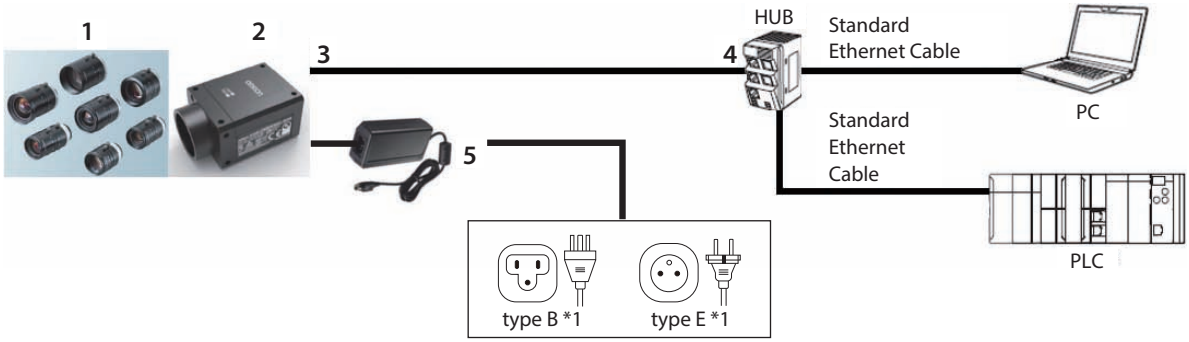
*1. The V430-WQ cable (excluding V430-WQR / V430-WQK) can be used as an extension of the V430-W8 cable.
*2. It is possible to connect a 97-000012-01 power supply instead of V430-W8. However, since there is no I/O line, you cannot connect to the sensor or PLC.
*3. A 24VDC power supply is not needed for 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-FXXXY50M-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.

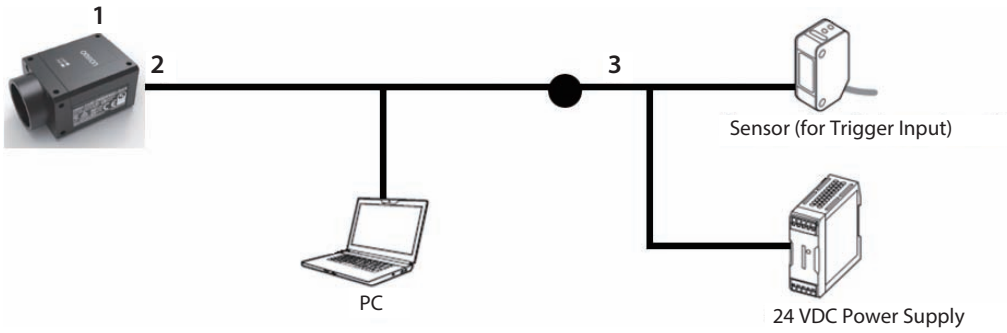
## Minimum External Power Configuration




| No. | Category | Model |
|---|---|---|
| 1 | C-Mount Lens | 3Z4S-□□, 98-9000□□□-01 |
| 2 | V440-F C-Mount 5 MP Camera | V440-FXXXY50M-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)

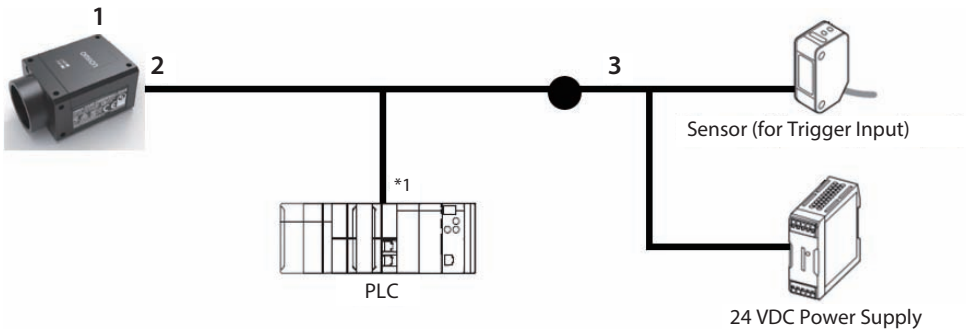
## USB Configuration




| No. | Category | Model |
|---|---|---|
| 1 | V440-F C-Mount 5 MP Camera | V440-FXXXY50M-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-FXXXY50M-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 |

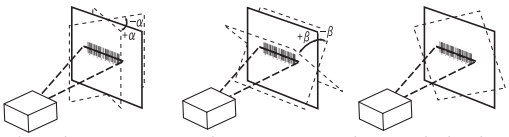
*1. If connecting Omron's CS/CJ/NJ Controller, check the connector shape and signal lines (pin assignments) and prepare the additional RS-232C conversion cable.
If connecting to Omron's NX Machine Automation Controller, no additional RS-232C cable is required.
*2. Insert the V430-WQR-3M cable between 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, 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, 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 (α) *3 | ±30° |
| | Skew Angle (β) *3 | ±30° |
| | Tilt Angle (γ) *3 | ±180° |
| Image | Resolution, Pixel Size | 2464 (H) x 2056 (V) – 3.45 µm Pixel Size |
| | Color / Monochrome | Monochrome CMOS |
| | Shutter | Global Shutter |
| | Frames per Second | 35 FPS for 5 MP |
| | Exposure | 16 µs to 400 msec |
| Image Logging | | FTP |
| Trigger | | External Trigger (Edge or Level), Communication Trigger (Ethernet, RS-232C) |
| Trigger to Strobe Latency + Jitter | | 320 µs + 65 µs |
| 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) × 61 mm (D) × 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$^2$, 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<br>FCC, UL, CE, UKCA, BIS, RCM, KC, EAC, BSMI (Pending) *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=∞.
*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
BSMI = Taiwan

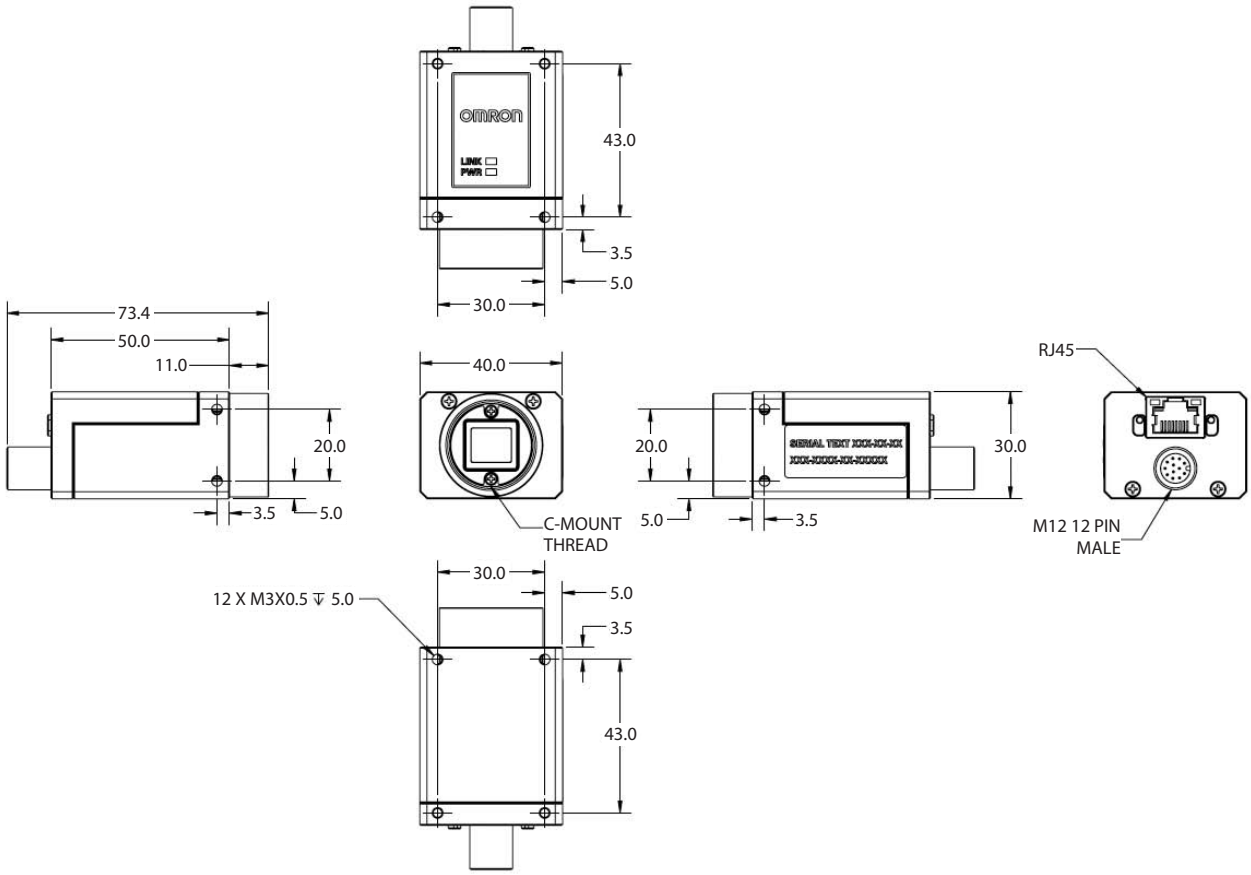
5-Megapixel C-Mount Code Reader V440-F

## Dimensions

(Unit: mm)

### C-Mount Code Reader

**V440-F**




### Related Manuals

| Man.No. | Model | Manual |
|---|---|---|
| 84-9000440-02 | V440-F | V440-F C-Mount Code Reader User Manual |
| 84-9350045-02 | V440-F | V440-F Communication Manual |
| 84-9200005-03 | V440-F | WebLink 3.0 Help (Accessible from the Help menu in the WebLink user interface) |

Handheld DPM Code Reader

# HS-360X series

## "Ultra-Rugged" Hand Held Code Reader


The HS-360X Ultra-Rugged Handheld 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. With best in class out of box performance most applications require NO setup. An all NEW user interface WebLink$_{PC}$ makes setup for more difficult applications intuitive and easy.

### HS-360X:At a Glance

- Wired or Wireless
- Ultra-Rugged DPM Handheld Code Reader
- Industry-Leading DPM Decoding Performance with X-Mode
- Intuitive WebLink$_{PC}$ Interface

### HS-360X:Available Codes

Liner

Stacked — PDF417, GS1 Databar

2D — Data Matrix, QR, Micro QR

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

**Ultra-Rugged**
The HS-360X withstands multiple drops from 8' and 5,000 tumbles.

**X-Mode Decode Algorithms**
The HS-360X includes industry-leading X-Mode decoding algorithms to consistently read damaged, distorted or otherwise challenging directly marked codes at high decode rates.

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

**Industrial Fluid and Chemical Tolerable**
Many industrial fluids and chemicals deemed tolerable.

**Charging Station**
The charging station is IP65 and transmits and receives data over a Bluetooth class 1 or 2 out to 300 feet. It includes a Wi-Fi friendly mode and a paging button to locate a misplaced code reader.

**Ease of Use - WebLink$_{PC}$**
Code reader configuration and deployment with browser based user interface and device discovery.

Handheld DPM Code Reader HS-360X series

## Ordering Information

| Type | Applicable countries | Model |
|---|---|---|
| Handheld DPM Code Reader, Wired, HDS-3608 | Common (except for India / Korea) | **HDS-3608-0001** |
| Handheld DPM Code Reader, Wireless, HDS-3678 | | **HDS-3678-0001** |
| Battery Spare for HS-360X Wireless Type | | **98-9000224-01** |
| Handheld DPM Code Reader, Wired, HDS-3608 INDIA / KOREA | India / Korea | **HDS-3608-0002** |
| Handheld DPM Code Reader, Wireless, HDS-3678 INDIA / KOREA | | **HDS-3678-0002** |
| Battery Spare for HS-360X Wireless Type, INDIA / KOREA | | **98-9000224-02** |
| Cradle / Charger, HS-360X Wireless Type | Common | **12-9000937-01** |
| Cable, USB, Shielded, 2m (Power Supply Required) | | **12-9000942-01** |
| Cable, USB, Shielded, 4.6m (Power Supply Required) | | **12-9000943-01** |
| Cable, USB, Shielded, 2m | | **12-9000946-01** |
| Cable, USB, Shielded, 4.6m | | **12-9000947-01** |
| Cable, RS-232, DB9 Socket, 2M, Straight, HS-360X (Power Supply Required) | | **12-9000953-01** |
| AC power Cord, 1.8m, JAPAN, C13 connector | Japan | **12-9001046-01** |
| AC power Cord, 1.9m, INDIA, C13 connector | India | **12-9000963-01*** |
| AC power Cord, 2.5m, US, C13 connector | United States | **12-9000959-01** |
| AC power Cord, 2.5m, EU / Korea, C13 connector | Europe / Korea | **12-9000960-01** |
| AC power Cord, 2.5m, UK, C13 connector | UK | **12-9000961-01** |
| AC power Cord, 2.5m, CHINA, C13 connector | China | **12-9000962-01** |
| KIT, Power Supply for Cradle / Charger, HS-360X Wireless Type (A / C Power Cord Required) | Common | **98-9000181-01** |
| KIT, Power Supply for Battery Charger, 4 Slot, HS-360X Wireless Type (A / C Power Cord Required) | | **98-9000182-01** |
| 4 Slot, Battery Charger, HS-360X Wireless Type (Power Supply Required) | | **98-9000185-01** |
| Intelligent Stand | | **98-9000186-01** |

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 HS-360X Series, please use the power supply and power supply cord indicated in this catalog.

Handheld DPM Code Reader HS-360X series

## Ratings and Specifications

| | | |
|---|---|---|
| Applicable codes | 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, MicroPDF417, Composite Codes, TLC-39, Data Matrix, QR Code, MicroQR, Aztec, Han Xin, GS1-QR, GS1-DM |
| | 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) |
| Reading performance | Field of view (Horizontal x Vertical) nominal | 31° (H) × 23° (V) |
| | Roll | 0 to 360° |
| | Pitch | ±60° |
| | Skew | ±60° |
| | Scans per charge | Up to 100,000 |
| | Minimum resolution | Code 39: 0.0762 mm<br>PDF417: 0.1016 mm<br>DataMatrix: 0.1016 mm |
| Interface | | USB, RS-232<br>The code reader supports the following protocols over USB: HID Keyboard (default mode), SNAPI, COM Port Emulation, USB CDC |
| Power | | 5 VDC + / - 10% @ 360 mA (RMS typical) |
| Light source | | Aiming pattern: Class 2 Laser 655nm<br>Illumination: Exempt Risk Group, Warm white LED, Red 634nm LED |
| Environmental specifications | Ambient temperature range | Wireless code reader<br>Operating: -20 to +50°C, Storage: -40 to +70°C<br>Wired code reader<br>Operating: -30 to +50°C, Storage: -40 to +70°C |
| | Ambient humidity range | 5%RH to 95%RH (with no icing or condensation), |
| | Drop specifications | Withstands multiple 8 ft. / 2.4 m drops to concrete at room temperature. |
| | Degree of protection | IP65 and IP67 |
| | ESD | 20 kV air discharge: 10 kV contact discharge |
| | Ambient light immunity | 0 to 10,037 foot-candles / 0 to 108,000 Lux (direct sunlight) |
| Weight | | Wireless code reader: Approx. 402 g (with Battery)<br>Wired code reader: Approx. 304 g (without Cable) |
| Dimensions | | Wireless code reader: 185 mm (H) × 143 mm (D) × 77 mm (W)<br>Wired code reader: 185 mm (H) × 132 mm (D) × 77 mm (W) |

## Cradle

| | |
|---|---|
| Power requirements for host-powered | 5.0V ± 10% |
| Power requirements for external power supply | 12.0V ± 5% |
| Typical current draw when not charging | 80mA @ 5V; 30mA @ 12V |
| Typical current draw in safe charging mode | 1200mA @ 5V (BC 1.2), 475mA (non-BC1.2); 700mA @ 12V |
| Typical current draw in safe charging mode | 400mA @ 5V; 200mA @ 12V |
| Interfaces | USB, RS-232 |
| Radio | Bluetooth, Up to 100 meters / 300 ft. in open air range / environment<br>Serial Port & HID Profiles<br>2.402 to 2.480 GHz Adaptive Frequency Hopping (co-existence with 802.11 wireless networks)<br>3Mbit / s (2.1Mbit / s) for Classic Bluetooth<br>1Mbit / s (0.27Mbit / s) for Low Energy |
| Ambient temperature range | Operating : -20 to 50°C,Storage : -40 to 70°C |
| Charging temperature | 0 to 40°C nominal, 5 to 35°C ideal |
| Ambient humidity range | 5%RH to 95%RH (non-condensing) |
| ESD | 25 kV air discharge 10 kV contact discharge |
| Weight | Approx. 390 g |
| Dimensions | 82.6 mm (H) x 229.4 mm (D) x 99.8 mm (W) |
| Safety standards | UL / EN / IEC 60950-1 + AM2 |
| EMC | IEC61000-4-(2,3,4,5,6,11) |
| EMI | FCC Part 15 Class B, ICES-003 Class B<br>Japan VCCI Class B |

Handheld DPM Code Reader HS-360X series

## Read Ranges

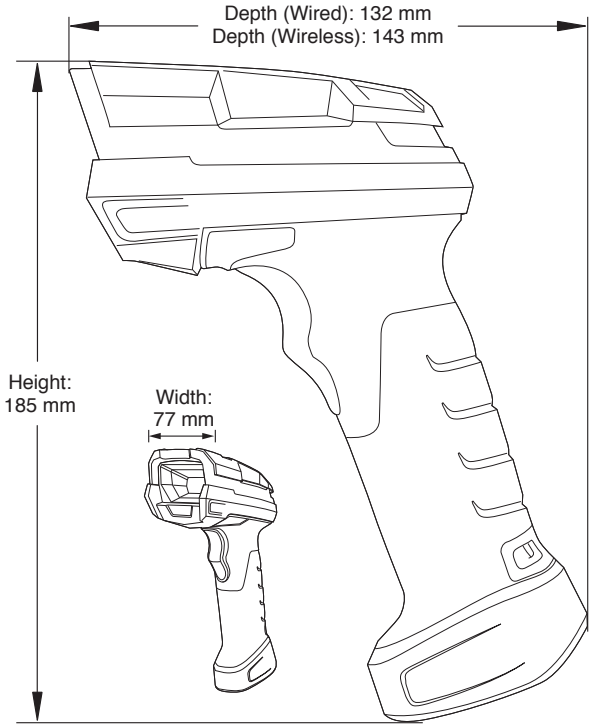
(Unit: mm)

| Barcode Type | Symbol Density | HS-360X Typical Working Ranges | |
|---|---|---|---|
| | | Near | Far |
| Code 39 | 0.0762 mm | 5 mm | 71 mm |
| PDF417 | 0.127 mm | 5 mm | 71 mm |
| | 0.16764 mm | 5 mm* | 81 mm |
| DataMatrix | 0.127 mm | 10 mm | 63 mm |
| | 0.254 mm | 0 mm | 86 mm |
| QR Code | 0.127 mm | 10 mm | 63 mm |
| | 0.254 mm | 0 mm | 86 mm |
| UPC | 0.3302 mm | 25 mm* | 147 mm |

* Field of view/barcode width limited. Decode ranges measured with Decoder Effort Level 1 (DPM Mode off), photographic paper barcodes, and under 30 fcd ambient light conditions.

## Dimensions

(Unit: mm)





**Laser Label Indications**

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

### Related Manuals

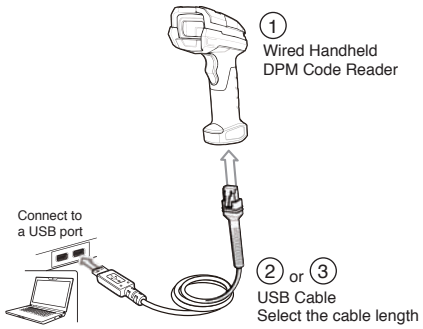
| Man.No. | Model | Manual |
|---|---|---|
| 84-9000360-02 | HS-360X | Handheld DPM Scanner User's Manual |
| 83-9310013-02 | HS-360X | Wired Handheld DPM Scanner Quick Start Guide |
| 83-9310014-02 | HS-360X | Wireless Handheld DPM Scanner Quick Start Guide |
| 83-9310018-02 | HS-360X | Cradle Quick Start Guide |
| 83-9310017-02 | HS-360X | Four-Slot Spare Battery Charger Quick Start Guide |

Handheld DPM Code Reader HS-360X series

## System Configurations

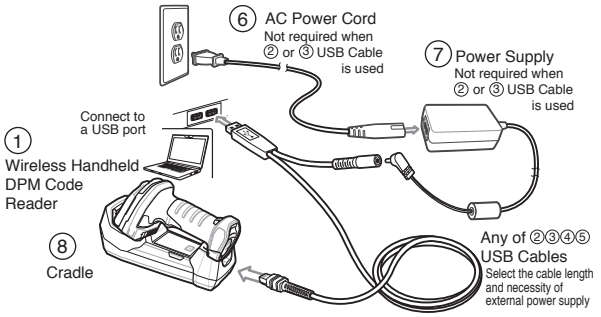
When settig with WebLinkPC, please use PC with WebLinkPC installed and USB cable (12-9000946-01/12-900953-01).

### Wired code reader (USB connection)




| No. | Type | Model |
|---|---|---|
| 1 | Handheld DPM Code Reader, Wired, HDS-3608 | HDS-3608-0001 |
| 2 | Cable, USB, Shielded, 2 m | 12-9000946-01 |
| 3 | Cable, USB, Shielded, 4.6 m | 12-9000947-01 |

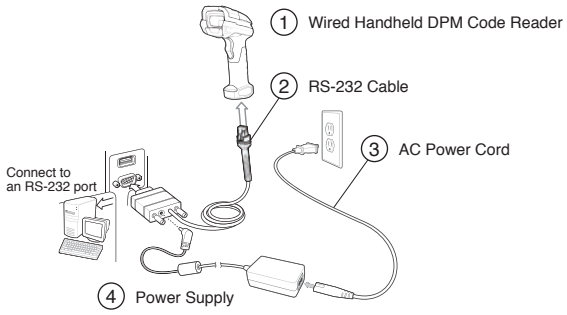
### Wireless code reader (USB connection)




| No. | Type | Model |
|---|---|---|
| 1 | Handheld DPM Code Reader, Wireless, HDS-3678 | HDS-3678-0001 |
| 2 | Cable, USB, Shielded, 2 m *1 | 12-9000946-01 |
| 3 | Cable, USB, Shielded, 4.6 m *1 | 12-9000947-01 |
| 4 | Cable, USB, Shielded,<br>2 m (power supply required) *1 | 12-9000942-01 |
| 5 | Cable, USB, Shielded,<br>4.6 m (power supply required) *1 | 12-9000943-01 |
| 6 | AC Power Cord, 1.8 m, JAPAN, C13 connector *2 | 12-9001046-01 |
| 7 | KIT, Power Supply for Cradle/Charger, HS-360X<br>Wireless Type (AC power cord required) | 98-9000181-01 |
| 8 | Cradle/Charger, HS-360X Wireless Type | 12-9000937-01 |

*1. Cables that require external power supply provide faster charge.
From discharge to full charge: 10 hours max. using USB port only, 3 hours max. using external power supply
*2. AC power cords that can be used in other countries are also available.

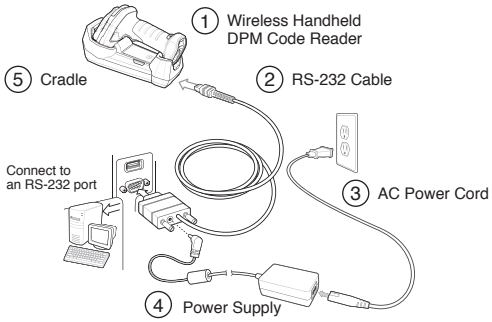
### Wired code reader (RS-232 connection)




| No. | Type | Model |
|---|---|---|
| 1 | Handheld DPM Code Reader, Wired, HDS-3608 | HDS-3608-0001 |
| 2 | Cable, RS-232, DB9 Socket, 2 m, Straight,<br>HS-360X (power supply required) | 12-9000953-01 |
| 3 | AC Power Cord, 1.8 m, JAPAN, C13 connector * | 12-9001046-01 |
| 4 | KIT, Power Supply for Cradle/Charger, HS-360X<br>Wireless Type (AC power cord required) | 98-9000181-01 |

* AC power cords that can be used in other countries are also available.

### Wireless code reader (RS-232 connection)



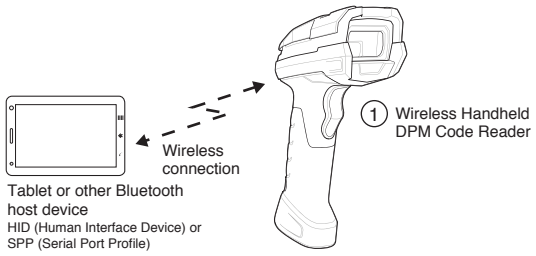

| No. | Type | Model |
|---|---|---|
| 1 | Handheld DPM Code Reader, Wireless, HDS-3678 | HDS-3678-0001 |
| 2 | Cable, RS-232, DB9 Socket, 2 m, Straight,<br>HS-360X (power supply required) | 12-9000953-01 |
| 3 | AC Power Cord, 1.8 m, JAPAN, C13 connector * | 12-9001046-01 |
| 4 | KIT, Power Supply for Cradle/Charger, HS-360X<br>Wireless Type (AC power cord required) | 98-9000181-01 |
| 5 | Cradle/Charger, HS-360X Wireless Type | 12-9000937-01 |

* AC power cords that can be used in other countries are also available.

Handheld DPM Code Reader HS-360X series

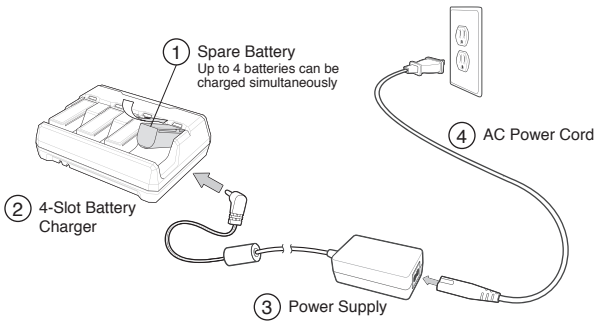
## System Configurations

### Wireless code reader (Bluetooth connection)




| No. | Type | Model |
|---|---|---|
| 1 | Handheld DPM Code Reader, Wireless, HDS-3678 | HDS-3678-0001 |

### Charging spare batteries




| No. | Type | Model |
|---|---|---|
| 1 | Battery, Spare, HS-360X Wireless Type | 98-9000224-01 |
| 2 | 4 Slots, Battery Charger, HS-360X Wireless Type (power supply required) | 98-9000185-01 |
| 3 | KIT, Power Supply for Battery Charger, 4 Slots, HS-360X Wireless Type (AC power cord required) | 98-9000182-01 |
| 4 | AC Power Cord, 1.8 m, JAPAN, C13 connector * | 12-9001046-01 |

* AC power cords that can be used in other countries are also available.

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.

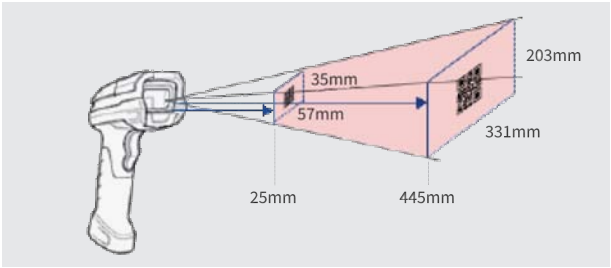
Alcohol-disinfectable*1

*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**

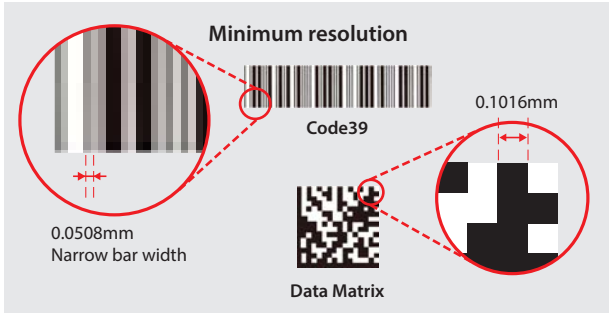



SR type provides easy alignment of a code reader with a code by its wide reading range and reading distance. Efficient manual code reading is possible.

### 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.

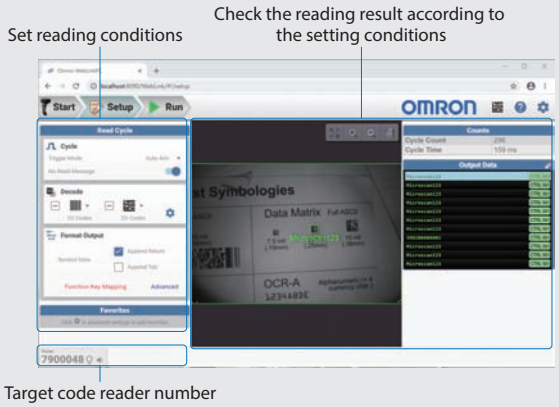
| Chemical resistance to: | Wipe disinfection |
|---|---|
| Sodium hypochlorite | OK (can be wiped down) |
| Isopropyl alcohol | OK (can be wiped down) |
| Hydrogen peroxide solution | OK (can be wiped down) |

Handheld Code Reader V410-H series

## Ease of Use - WebLinkPC

**SR type / XD type**

**A single screen makes settings easy**




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

Liner

Stacked — PDF417, GS1 Databar

2D — Data Matrix, QR, Micro QR

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** |

### WebLinkPC

To download WebLinkPC, go to 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

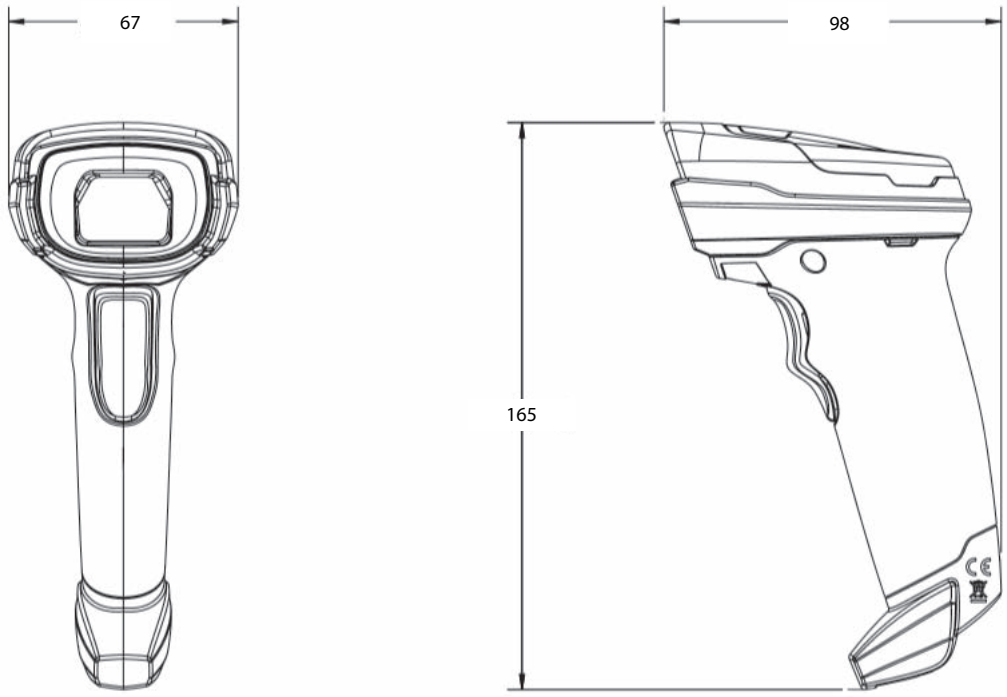
| V410-H | XD | SR | HC |
|---|---|---|---|
| Item | Description | | |
| Physical Characteristics | | | |
| Dimensions | 6.5 in. H x 2.6 in. W x 3.9 in. D<br>165 mm H x 67 mm W x 98 mm D | | |
| Weight | 5.7 oz. / 161.9 g | | |
| Input Voltage Range | 4.5 to 5.5 VDC Host Powered; 4.5 to 5.5 VDC External 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 |
| Performance Characteristics | | | |
| 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° | | |
| Imaging Characteristics | | | |
| Graphics Format Support | Images can be exported as Bitmap, JPEG, or TIFF | | |
| Image Quality | 96 PPI on an A4 document | | |
| Environmental | | | |
| 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 | | |
| Symbol Decode Capability | | | |
| 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 | Code 39 - 3.0 mil | Code 39 - 2.0 mil |
| | Data Matrix - 4.0 mil | Data Matrix - 5.0 mil | Data Matrix - 4.0 mil |
| Decode Ranges (Typical; Printing resolution, contrast, and ambient light-dependent) | | | |
| 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 |
| Utilities and Device Management | | | |
| WebLinkPC | Programs reader parameters, upgrades firmware, provides encoded barcode data, allows image-based troubleshooting | | |
| Regulatory Compliance | | | |
| 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 | | |

## Dimensions

(Unit: mm)

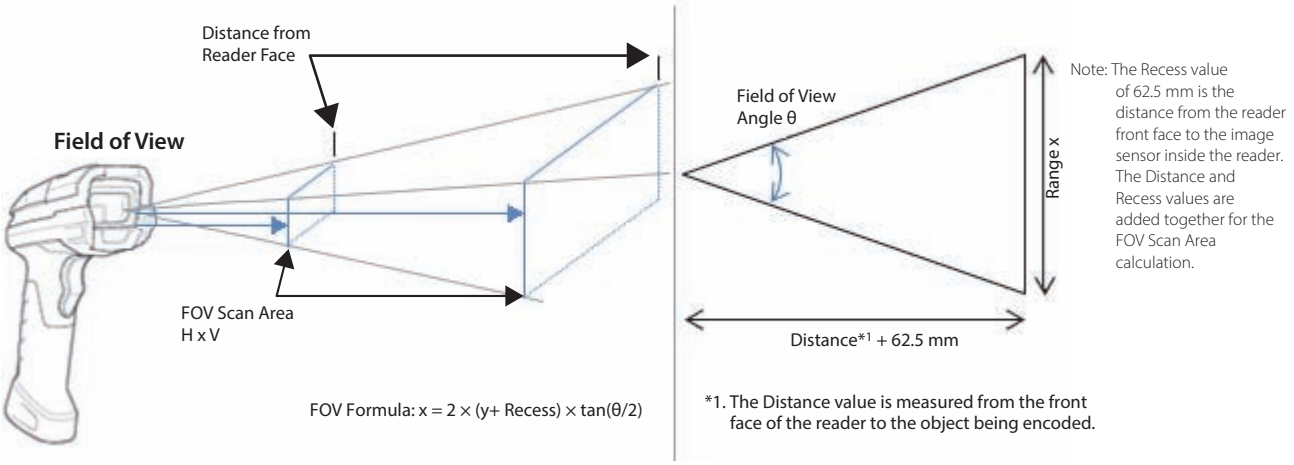



Note: Reader dimensions are the same for the V410-H XD, V410-H SR, and V410-H HC.

Handheld Code Reader V410-H series



### Imager Field of View




Note: The Recess value of 62.5 mm is the distance from the reader front face to the image sensor inside the reader. The Distance and Recess values are added together for the FOV Scan Area calculation.

### XD: Image Field of View in degrees = 34 (horizontal) x 21.6 (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) |
|---|---|---|---|---|---|---|---|
| 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 | 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) |
|---|---|---|---|---|---|---|---|
| 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 | - | - | - | - |

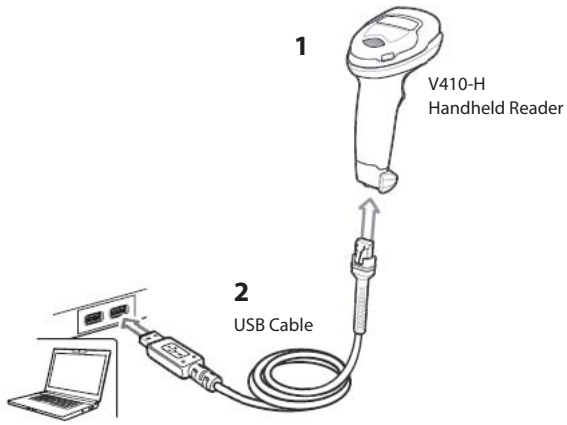
### HC: Image Field of View in degrees = 35 (horizontal) x 22 (vertical)

| y (mm) | y + Recess | 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) |
|---|---|---|---|---|---|---|---|
| 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

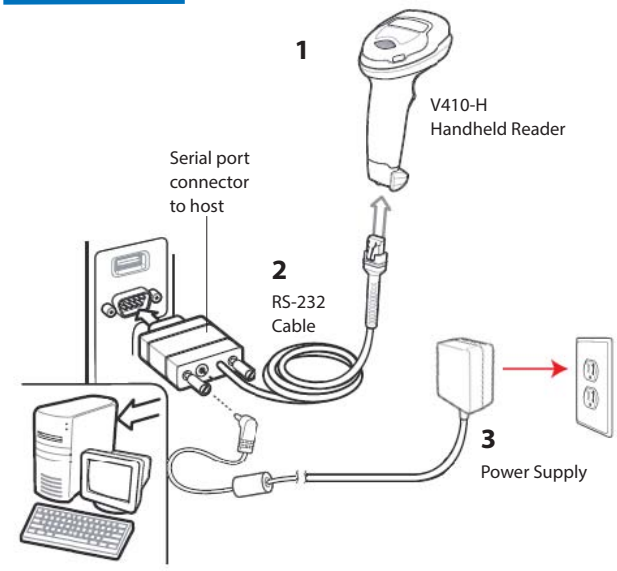
## Configurations

### 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

**Related Manuals**

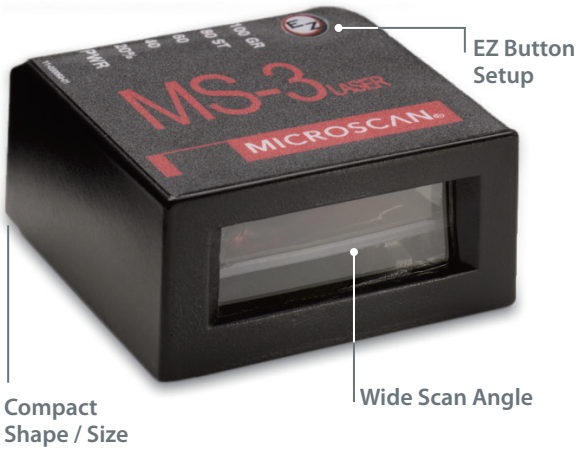
| Man. No. | Model | Manual |
|---|---|---|
| Z439<br>(84-9000362-02) | V410-HDS4608SR, V410-HDS4608XD, V410-HDS4608HC,<br>V450-HDS3608-0001, V450-HDS3608-0002 | V410-H and V450-H Handheld Barcode Reader User Manual |

MEMO

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

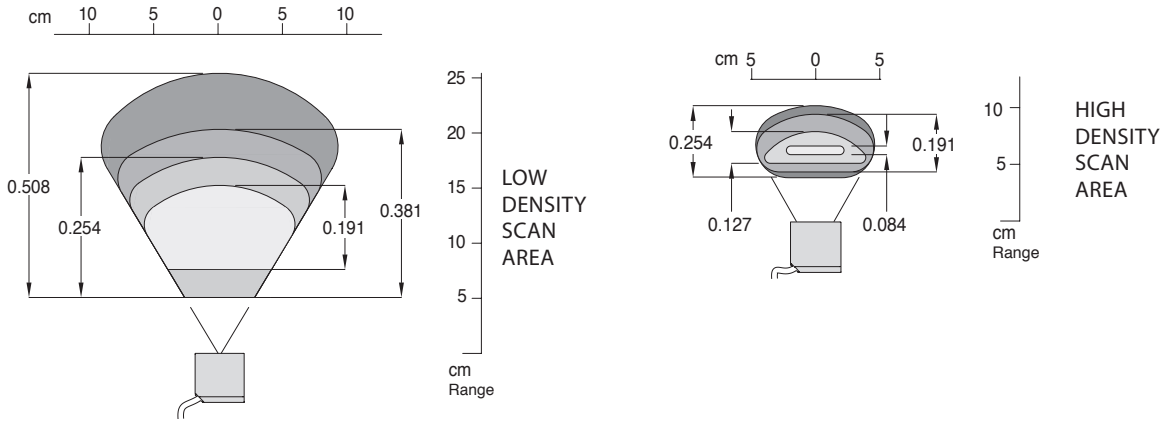
| Pin No. | Host RS-232 | Host / Aux RS-232 | Host RS-422 / 485 | In / Out |
|---|---|---|---|---|
| 1 | Power +5 VDC | | | In |
| 2 | TxD | TxD | TxD(–) | Out |
| 3 | RxD | RxD | RxD(–) | In |
| 4 | Power / Signal Ground | | | |
| 5 | NC | | | |
| 6 | RTS | Aux TxD | TxD(+) | Out |
| 7 | Output 1 TTL[a]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



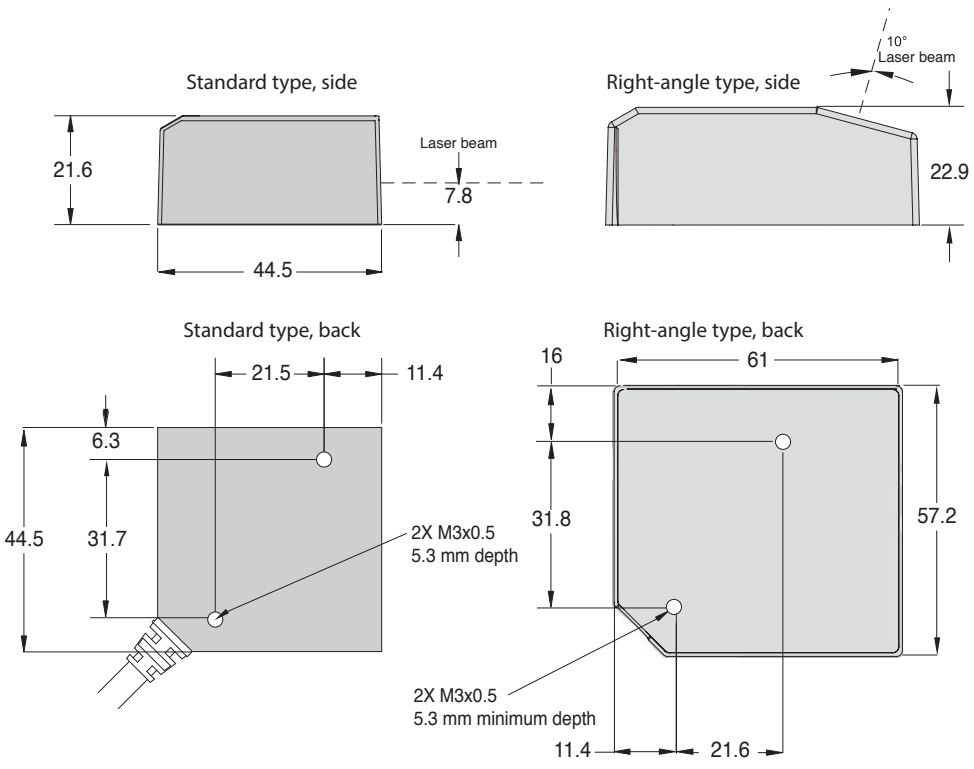

| Narrow-bar-width | Read range |
|---|---|
| 0.191 mm | 76 to 152 mm |
| 0.254 mm | 51 to 178 mm |
| 0.381 mm | 51 to 203 mm |
| 0.508 mm | 51 to 254 mm |

| 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**

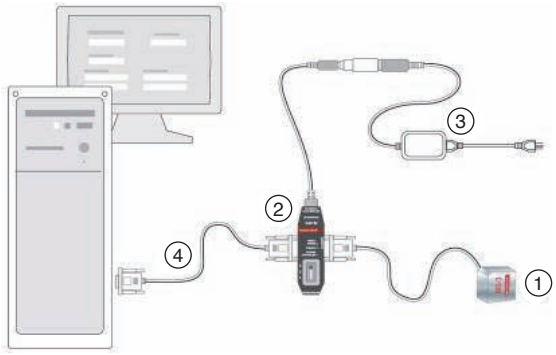
This warning label is attached to the laser barcode reader.
Never remove this label or place objects in front of it.

Laser Barcode Reader MS–3 series

## System Configurations

### Stand Alone (5V)

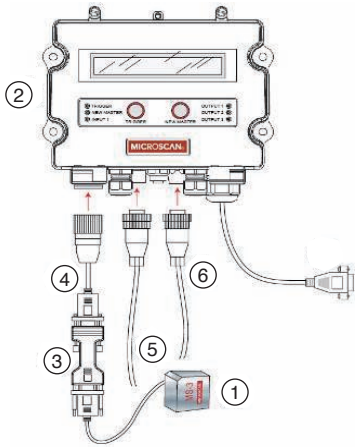
This is the basic setup for a single MS-3.




| 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)

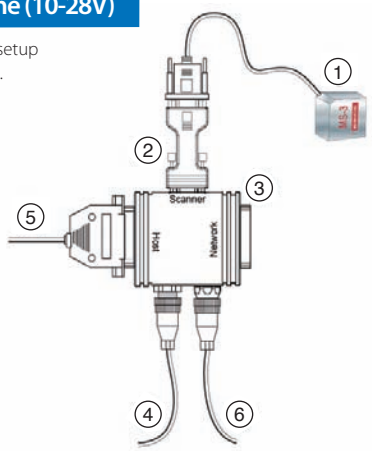
With MS-Connect 210
This is the basic setup for a single MS-3 and MS-Connect 210.




| 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.



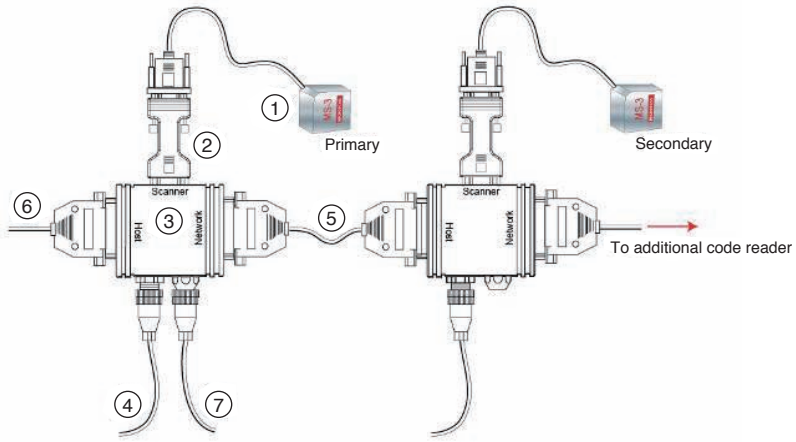

| No. | Type | Model |
|---|---|---|
| 1 | MS-3 Laser Barcode Reader | FIS-0003-□□□□G |
| 2 | Converter, IC-332, 24V / 5V, Opto I / O, for Use with IB-131 | FIS-0001-0035G |
| 3 | IB-131 Interface Box | 99-000018-01 |
| 4 | Power Supply (100-240 VAC, +24VDC, TRK 3Pin, USA / Euro Plug) | 97-000012-02 |
| 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.

### QX–830: Available Codes

Linear

Stacked — MicroPDF, PDF417, GS1 Databar

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

**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.

**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.

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

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

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

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

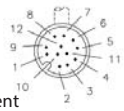
## Ratings and Specifications

| | | |
|---|---|---|
| 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, ($I_{CE}$ <100 mA at 24 VDC, current limited by user) |
| Power requirement | | 10 to 28 VDC, 200 mV 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

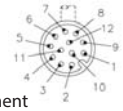
CONNECTOR A
*M12 12-PIN PLUG*



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*

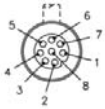


Pin Assignment

| | |
|---|---|
| 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

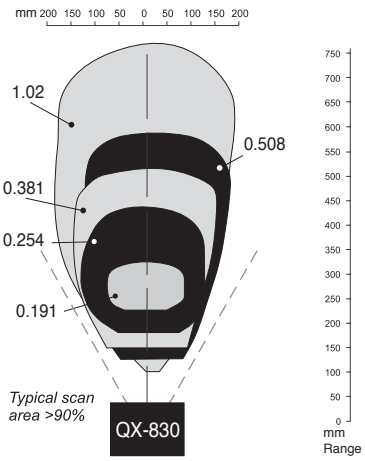
| | |
|---|---|
| 1 | Terminated |
| 2 | Terminated |
| 3 | Terminated |
| 4 | TX (–) |
| 5 | RX (+) |
| 6 | TX (+) |
| 7 | Terminated |
| 8 | RX (–) |

Laser Barcode Reader QX–830 series

## Read Ranges*

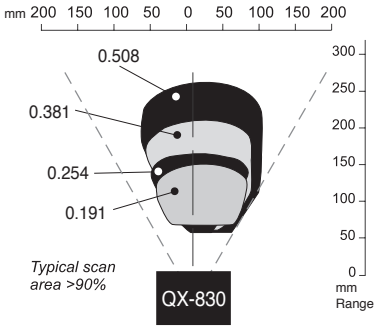
(Unit: mm)

Low Density Scan Area



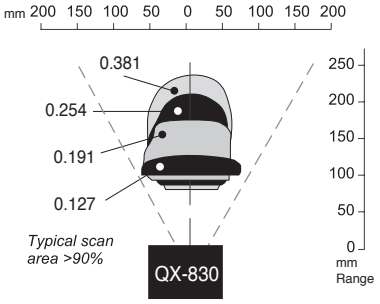

| Narrow-bar-width | Read range |
|---|---|
| 0.191 mm | 254 to 305 mm |
| 0.254 mm | 178 to 406 mm |
| 0.381 mm | 152 to 483 mm |
| 0.508 mm | 127 to 559 mm |
| 1.02 mm | 102 to 762 mm |

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

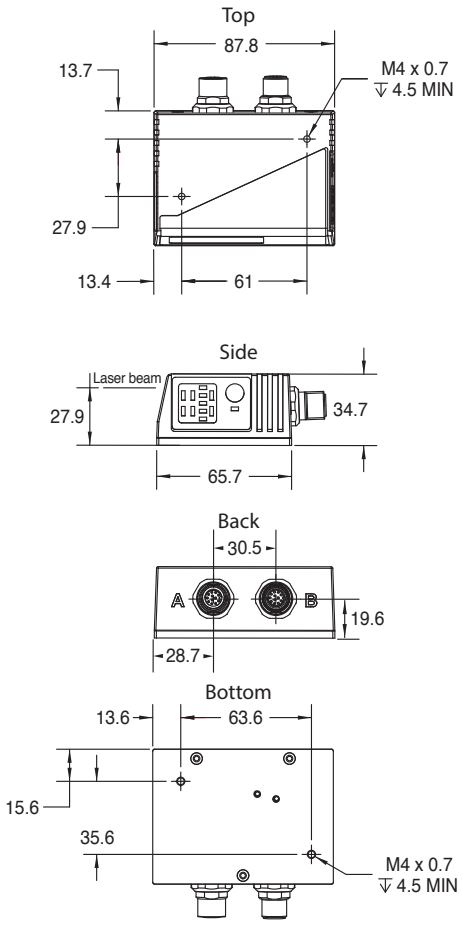



| Narrow-bar-width | Read range |
|---|---|
| 0.084 mm | Contact OMRON. |
| 0.127 mm | 102 to 127 mm |
| 0.191 mm | 89 to 171 mm |
| 0.254 mm | 82 to 203 mm |
| 0.381 mm | 82 to 229 mm |

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

## Dimensions

(Unit: mm)





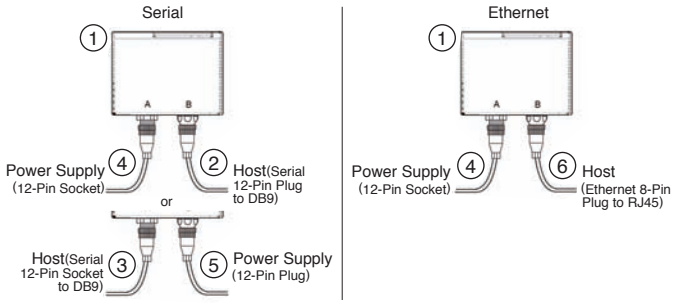
**Laser Label Indications**

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

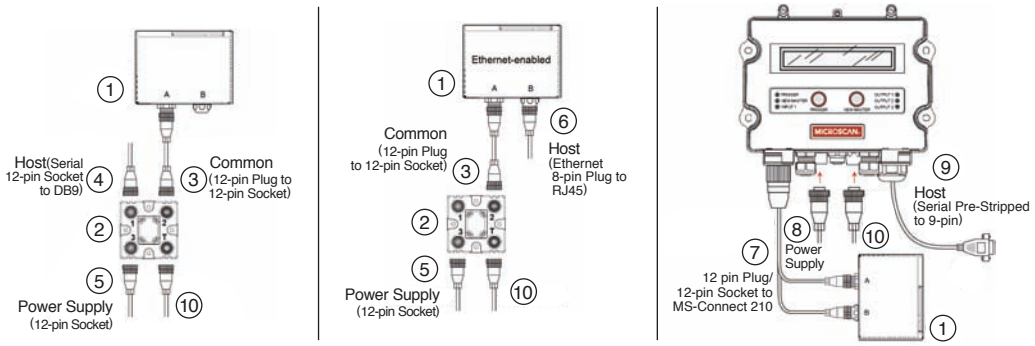



| No. | Type | Model |
|---|---|---|
| 1 | QX-830 Laser Barcode Reader | FIS-0830-□□□□G |
| 2 | QX Cordset, Host, Serial, M12 12-Pin Plug (Screw-On)-to-DB-9 Socket, 1 m. | 61-000152-02* |
| 3 | QX Cordset, Host, Serial, M12 12-Pin Socket (Screw-On)-to-DB-9 Socket, 1 m. | 61-000153-02* |
| 4 | Power Supply, 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



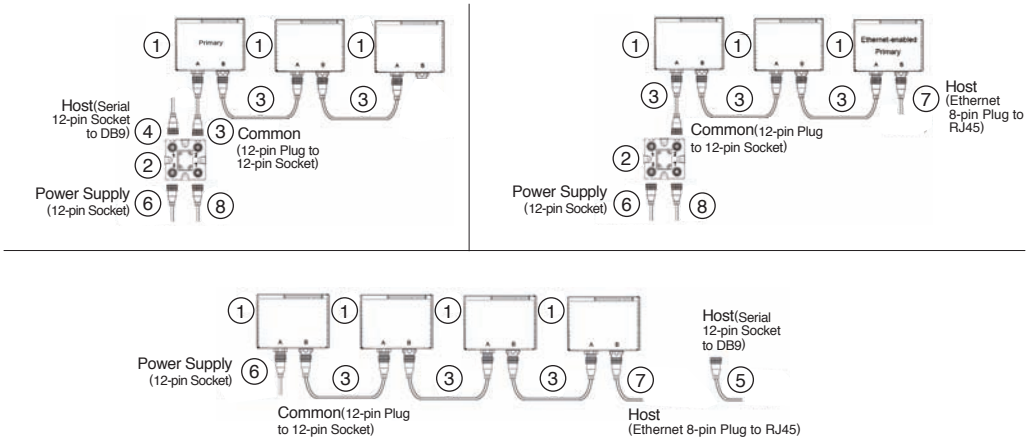

| No. | Type | Model |
|---|---|---|
| 1 | QX-830 Laser Barcode Reader | FIS-0830-□□□□G |
| 2 | QX-1 Interface Device | 98-000103-02 |
| 3 | QX Cordset, Common, M12 12-Pin Socket (Screw-On)-to-M12 12-Pin Plug (Screw-On), 1 m. | 61-000162-02*1 |
| 4 | QX Cordset, Host, Serial, M12 12-Pin Socket (Screw-On)-to-DB-9 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.

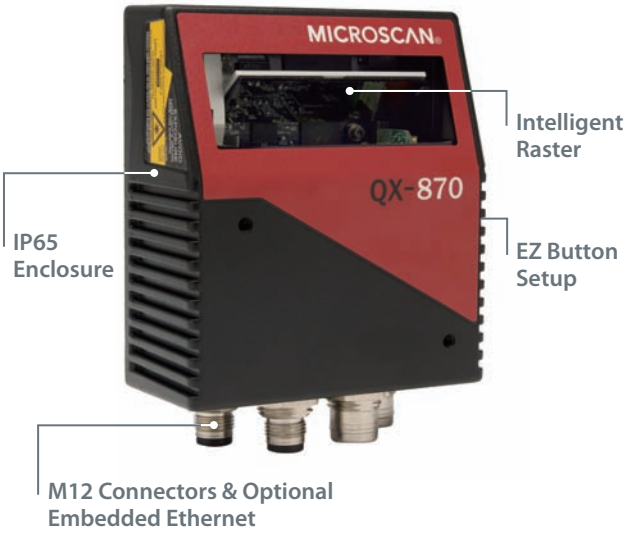
### Related Manuals

| 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.

### QX–870: Available Codes

Linear

Stacked — MicroPDF, PDF417, GS1 Databar

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

**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.

**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.

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

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

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, ($I_{CE}$ <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 |

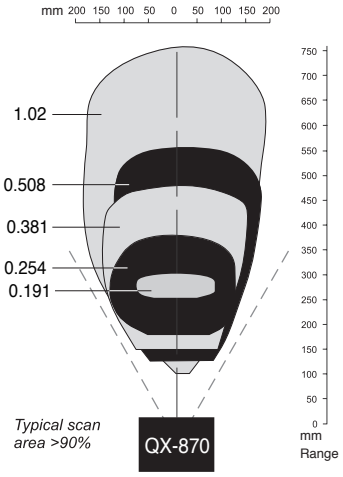
*Note: Detailed connector pinout information is available in the User's Manual.

Laser Barcode Reader QX–870 series

## Read Ranges*

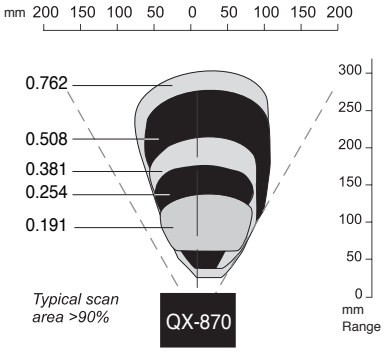
(Unit: mm)

Low Density Scan Area



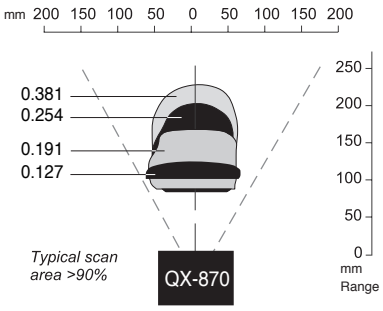

| Narrow-bar-width | Read range |
|---|---|
| 0.191 mm | 254 to 305 mm |
| 0.254 mm | 178 to 381 mm |
| 0.381 mm | 152 to 483 mm |
| 0.508 mm | 127 to 558 mm |
| 1.02 mm | 102 to 762 mm |

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 280 mm |
| 0.762 mm | 25 to 304 mm |

High Density Scan Area

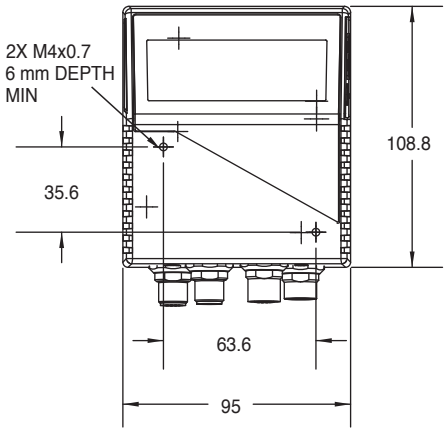


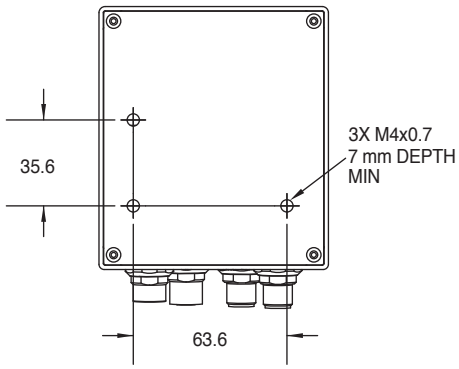

| Narrow-bar-width | Read range |
|---|---|
| 0.084 mm | Contact OMRON. |
| 0.127 mm | 102 to 127 mm |
| 0.191 mm | 89 to 171 mm |
| 0.254 mm | 82 to 203 mm |
| 0.381 mm | 82 to 228 mm |

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

## Dimensions

(Unit: mm)





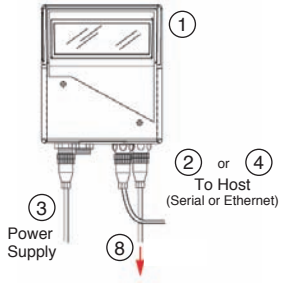
**Laser Label Indications**

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

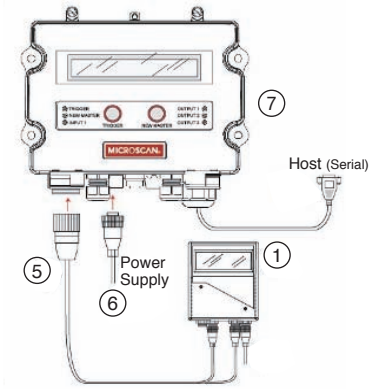
## System Configurations

### Stand Alone Configurations




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

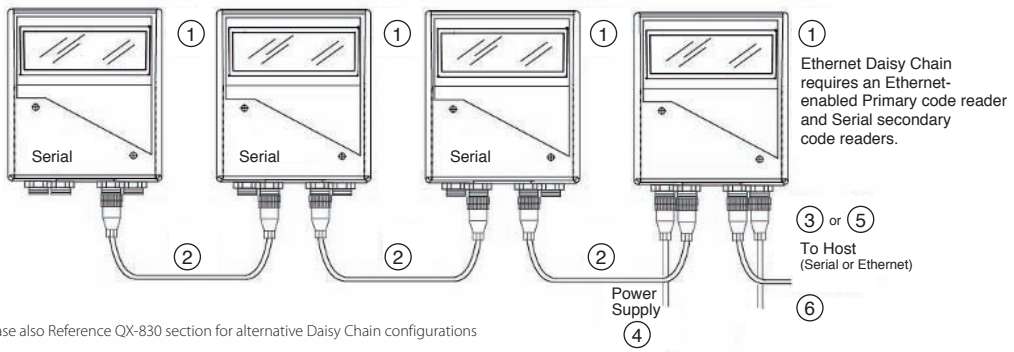
MS-Connect 210




| 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*1 |
| 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*1 |
| 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*2 |
| 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* |
| 3 | QX Cordset, Host, Serial, M12 12-Pin Plug (Screw-On)-to-DB-9 Socket, 1 m. | 61-000152-02* |
| 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* |
| 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 |

MEMO

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.

### LVS-9510: Available Symbologies


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

**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.

**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 pr grammed 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.

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** |

Code Verification System LVS-9510 series

## Ratings and Specifications

| | | |
|---|---|---|
| Supported standards | Application 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 |
| | | Chinese Sensible (Han Xin) Code |
| | | 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 |
| | 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 |
| | 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 |
| 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) |
| | | 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) symbologies | 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)<br>• EIB CMDM<br>• French CIP<br>• GS1 Data Matrix<br>• 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) | | • Windows® 7 Professional, Windows® 8.1 Pro, or Windows® 10 Pro<br>• Intel® Core™ 2 Duo Processor or higher<br>• 2 GB RAM<br>• 800 x 600 screen resolution<br>• One USB 2.0 port available per unit |
| 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),<br>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<br>(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) | | • Included with 9510-5-3.0: EAN / UPC Calibrated Conformance Standard Test Card<br>• Included with 9510-5-4.0: EAN / UPC Calibrated Conformance Standard Test Card<br>• Included with 9510-5-4.5: EAN / UPC Calibrated Conformance Standard Test Card<br>• Included with 9510-5-6.250: GS1-128 Calibrated Conformance Standard Test Card |
| Calibrated Conformance Test Card (Option) | | • EAN / UPC Calibrated Conformance Standard Test Card (Model: 98-CAL020)<br>• GS1-128 Calibrated Conformance Standard Test Card (Model: 98-CAL021) |

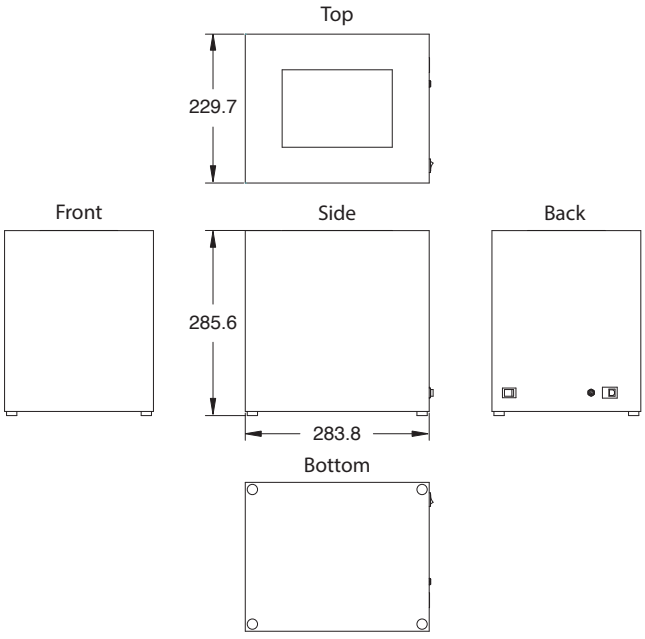
## Options

### 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.

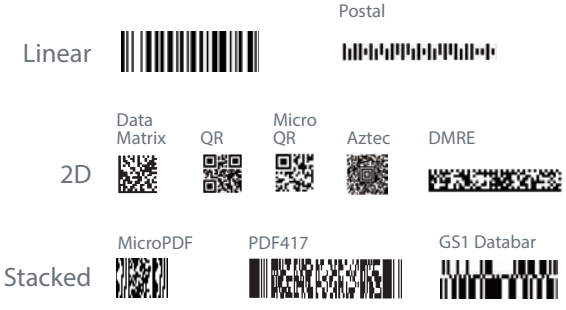
The LVS-9585 verifies multiple symbologies, including any combination of linear, 2D (Data Matrix, QR Code, and Aztec Code), and stacked linear (PDF417, MicroPDF, and Composite codes).

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.

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** |

Code Verification System LVS-9585 series

## 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 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 |
| | 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 |
| 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) |

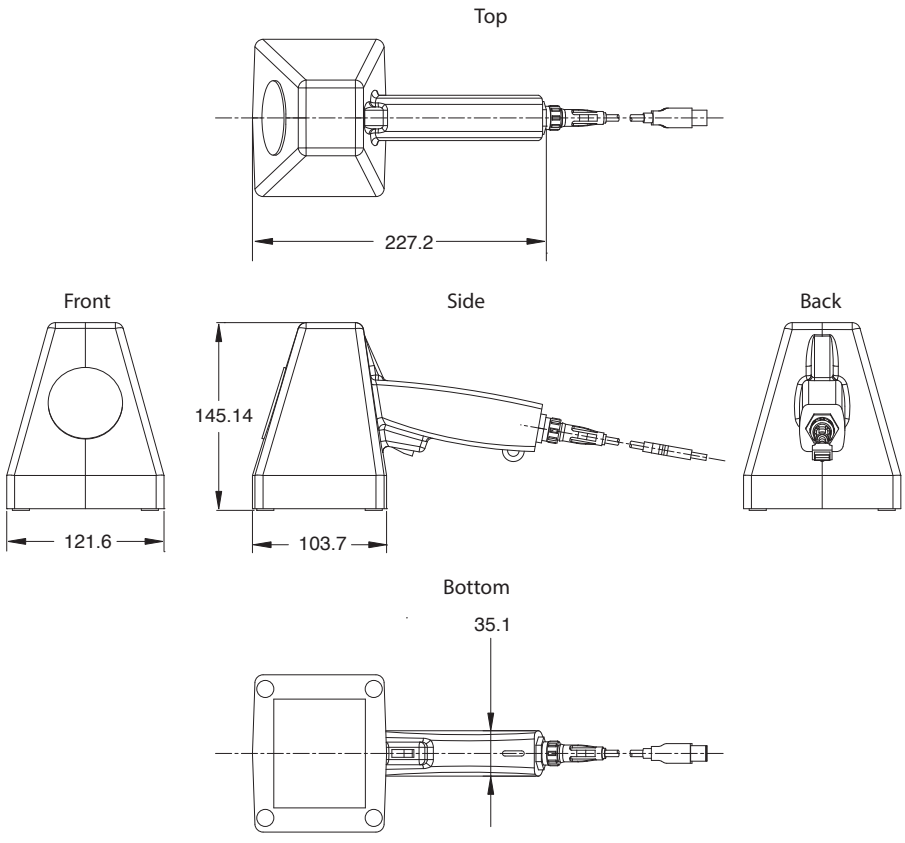
* Contact OMRON for a complete list of supported ECC-200 (Data Matrix) codes.
CC=Composite Components

Code Verification System LVS-9585 series

| | | |
|---|---|---|
| Minimum PC requirements (PC supplied by customer) | | • Windows®7 Pro SP1 or Windows®10 Pro<br>• Intel® Core™ i3 or higher<br>• 4 GB RAM<br>• 800 x 600 screen resolution;<br>• One USB 2.0 port available per unit |
| 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)<br>2D = 5.9 mils (0.15 mm) |
| | HD (9585-DPM-HD) | 2D = 2.0 mils (0.05 mm) |
| Camera | | 5 million pixels |
| | | Object distance: Contact |
| Illumination | | 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),<br>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) | | • Included with 9585-DPM: EAN / UPC Calibrated Conformance Standard Test Card<br>• Included with 9585-DPM-HD: Data Matrix Calibrated Conformance Standard Test Card |
| 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**


**Weighs only 0.64kg**

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.

### 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.

**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.

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-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** |

# 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 |

## Code Verification System LVS-9580 series

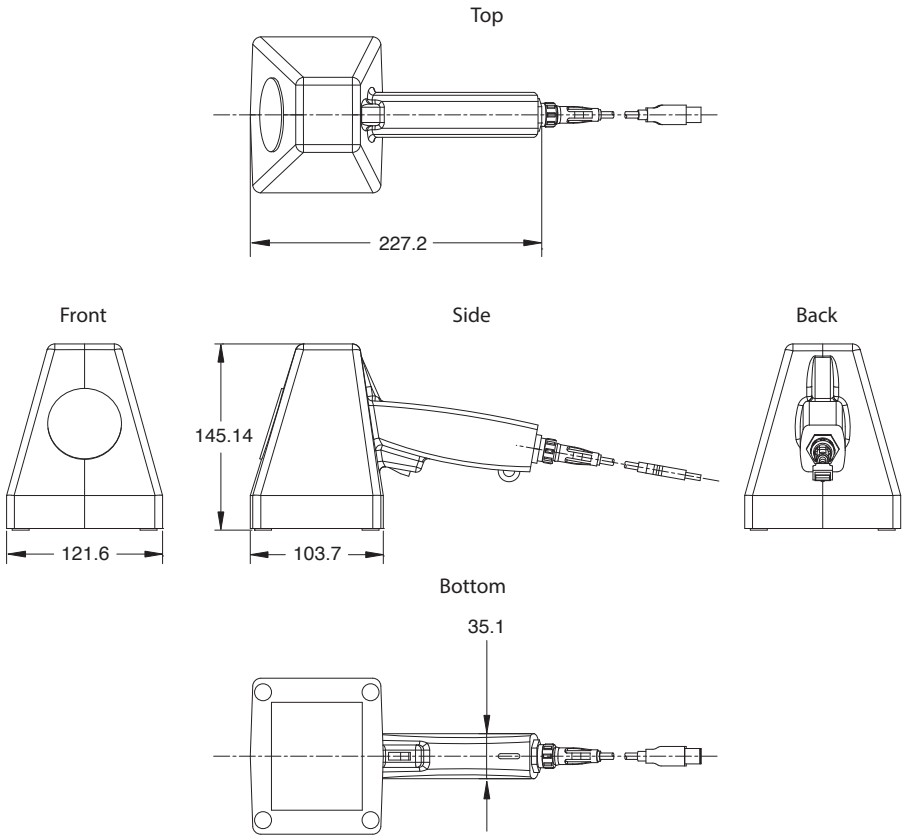
| | | |
|---|---|---|
| Supported symbologies | Linear (1D) symbologies | Codabar |
| | | Code 128 Code 39 Code 93 |
| | | GS1 DataBar Expanded and Limited |
| | | DataBar |
| | | DataBar Expanded and Limited |
| | | DataBar Omnidirectional |
| | | DataBar Stacked and Truncated |
| | | EAN / JAN-13 |
| | | 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) |
| Minimum PC requirements (PC supplied by customer) | | • Windows®7 Pro SP1 or Windows®10 Pro<br>• Intel® Core™ i3 or higher<br>• 4 GB RAM<br>• 800 x 600 screen resolution<br>• One USB 2.0 port available per unit |
| Field of view | Standard (9580-C-3) | 76.19 mm horizontal<br>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)<br>DPM (9580-DPM) | 1D = 4.0 mils (0.10 mm)<br>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),<br>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) | | • Included with 9580-C-3: EAN / UPC Calibrated Conformance Standard Test Card<br>• Included with 9580-DPM: EAN / UPC Calibrated Conformance Standard Test Card<br>• Included with 9580-DPM-HD: Data Matrix Calibrated Conformance Standard Test Card |
| Safety standards | | FCC, CE, UL, KC, RCM |

* Contact OMRON for a complete list of supported ECC-200 (Data Matrix) codes.
CC=Composite Components

Code Verification System LVS-9580 series

## 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 |

**MEMO**

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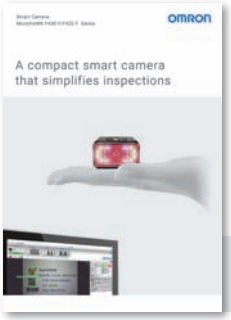


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