OMRON

Barcode reading at its best

MicroHAWK
V Series

INTEGRATED | INTELLIGENT | INTERACTIVE

OMRON

The history of Microscan and MicroHAWK

As the inventor of the first laser diode barcode scanner and the DataMatrix barcode symbology, Microscan Systems became part of Omron Automation in 2017. With this acquisition, Omron now holds one of the world's most extensive patent portfolios for barcode reading technology.

The MicroHAWK line was launched in 2016 to cover a variety of barcode reading and machine vision needs with an extremely small footprint. Now updated with new features and additional models that further address pressing traceability and vision requirements, the latest generation of MicroHAWK continues to provide incredible value and performance in almost any industrial applications.

Designed to perform

MicroHAWK takes code reading to the next level

Addressing the challenge of reliably reading a variety of barcodes on different surfaces at high speeds in difficult factory environments, MicroHAWK barcode readers and smart cameras use powerful X-Mode algorithms to render damaged and incomplete symbols readable. For reliable decoding at the speed you need, they come standard with speeds up to 60 Frames Per Second.

Design your next-level solution for traceability, quality control or vision inspection with a technology that combines advanced optics with monochrome and color image sensors of up to a 5MP resolution and a variety of fixed-focus and autofocus lens options.

MicroHAWK offers a wide range of hardware options to meet almost any industrial need, solving the toughest barcode reading challenges.

Automotive

- Powertrain components
- Safety systems
- Steering and braking
- Labeling
- Electronic assemblies

Electronics

- Component and PCB traceability
- Sub-assembly tracking
- Automated line changeover
- Quality assurance
- WIP tracking

Life Sciences

- Sample tracking
- Medical device tracking
- Test level traceability
- Vial reading and verification

Packaging

- Matching inserts to packaging
- Item traceability
- Quality assurance
- Anti-counterfeiting measures
- Package sortation
- Carton coding
- Print and apply labeling

Meeting traceability objectives for Industry 4.0

As an integral component of a robust traceability system, MicroHAWK

Life Sciences

- Regulatory compliance via barcoding on labels and direct part marked products
- Anti-counterfeiting via serialization
- Automation and accuracy assurance of laboratory samples

Automotive

- Tool and process quality control tracking
- Matching paired components
- Vision-based defect detection
- Unit level tracking of components, quality issue containment and rapid response
- Anti-counterfeiting via serialization and barcode-embedded information

covers a wide range of industry-specific objectives

Consumer Packaging

- One-step-forward/one-step-backward traceability regulations
- Raw material inventory optimization
- OEE measurement and process optimization via lot and unit-level quality tracking
- Reject/recall containment and response efficiency
- Visual quality checks to protect brand image

Electronics

- Analyzing traceability data to determine which machines and processes require optimization
- Scanning barcodes to follow production "recipes" and enable lights-out manufacturing
- Using traceability to streamline testing processes

Intuitive and simple to use

Setup your application and start reading codes quickly

Connects via LAN or WiFi

MicroHAWK barcode readers and smart cameras lead the industry for effortless setup and installation. Simply connect the MicroHAWK to power and to your PC, laptop, or tablet via USB, Ethernet, or serially, and configure your application.

Providing the most intuitive controls of any barcode reading setup tool, WebLink ushers in the age of usability to this essential task.

WebLink Browser Based Interface

- World's first web-based barcode reader interface
- No software to download or install
- Compatible with any MicroHAWK reader
- One-click symbol training and optimization tools
- Automatic image storage from camera to external server

Integrates easily
with a compact footprint

Supporting a variety of industrial communication protocols and onboard I/O, MicroHAWK allows you to securely and efficiently integrate your data with factory automation applications. The platform interfaces easily with Omron's control hardware and also integrates in devices supporting EtherNet TCP/IP, EtherNet/IP and PROFINET.

Designed specifically for integration into the tightest of spaces, MicroHAWK barcode readers are the most compact, lightweight and durable devices for tough industrial environments. In fact, the V430 is the smallest IP65/67-rated barcode reader available on the market today.

One Connection

From position detection to positioning, high-speed data transmission via EtherNet/IP or PROFINET enables smooth and flexible control.

Machine automation controller

Smart camera

Motion or Robotics
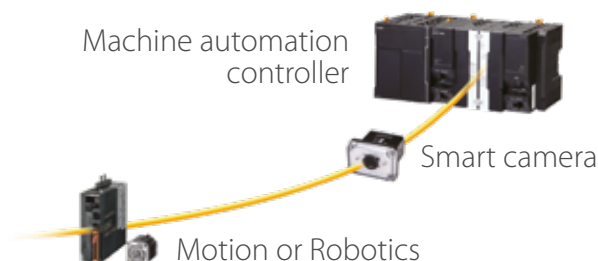
Integrated

Omron's commitment to easy integration is evident in the MicroHAWK platform's seamless interface with our control hardware and third-party devices supporting EtherNet TCP/IP, EtherNet/IP and PROFINET.

Intelligent

Powerful decoding algorithms, thorough barcode quality monitoring, advanced password management and other key features make this smart solution stand out in today's automation technologies.

Interactive

Using the highly intuitive browser based WebLink interface you are able to quickly configure and monitor your MicroHAWK reader, instantly seeing the result of configuration settings.

Key Technology Features

- X-mode decoding algorithms
- High-speed liquid lens autofocus
- Daisy chain networking
- Onboard configuration database
- Barcode quality monitoring
- Advanced password management

- Rapid Capture mode
- Enhanced integrated lighting
- AutoVISION Machine Vision Software
- Expandable platform with Machine Vision software option

MicroHAWK Advanced Barcode Reading Technologies

X-mode decoding algorithms

When there's no way to predict barcode quality or control marking variations, X-Mode's aggressive symbol location, analysis, and reconstruction algorithms minimize no-reads by decoding reliably in some of the most challenging circumstances.

Daisy chain networking

Users can combine up to 8 readers with an EtherNet switch for 360-degree product inspection and code reading when code location is unpredictable or when a combined output string from multiple codes is needed.

Barcode Quality Monitoring

Using ISO standard grading methods, this feature provides in-line monitoring of print or mark quality during production along with the ability to trigger an output should quality fall below a user-defined threshold.

Rapid Capture Mode

This feature ensures that the reader can capture up to 32 images with a single trigger input in high-speed applications with user configurable intervals as small as 32 microseconds. It can be combined with Power Strobe operation.

High-speed liquid lens autofocus

MicroHAWKs with liquid lenses can automatically adjust focus at short and long ranges to read high-density, 3.3-mil Data Matrix symbols on complex PCBs, large linear barcodes on packages over a distance ranging from 50mm to 1200mm.

Onboard configuration database

The platform supports high-mix manufacturing by cycling through multiple configuration settings to apply the best options based on barcode type, size, label media and location to maximize read rate and line speed.

Advanced Password Management

With three user access levels in WebLink, MicroHAWK provides control over editing settings to qualified personnel only while supporting requirements in validated and other high-security applications.

Enhanced integrated lighting

For low-contrast codes, specular surfaces, DPMs and other challenging applications, MicroHAWK offers additional field-upgradeable internal lighting options to supplement the built-in red and white LED lighting.

MicroHAWK V/F Series

Product Comparison Table

Feature	V320, F320	V330, F330
Barcode Symbol Types	1D, 2D, Direct Part Marks	1D, 2D, Direct Part Marks
Sensor Resolutions Available	752 (H) x 480 (0.3MP) (V) Mono 1280 (H) x 960 (1.2MP) (V) Mono 2592 (H) x 1944 (V) (5.0MP) Color	752 (H) x 480 (0.3MP) (V) Mono 1280 (H) x 960 (1.2MP) (V) Mono 2592 (H) x 1944 (V) (5.0MP) Color
Illumination Standard	8 LED White/Red	8 LED White/Red
Illumination Optional	N/A	N/A
Lens Focal Length Available	Wide, Medium, Narrow	Wide, Medium, Narrow
Lens Focal Length Available	Fixed Focus; 50, 64, 102, 190, 300 mm	Fixed Focus; 50, 64, 102, 190, 300 mm
Processor Speed	500 MHz	500 MHz
Maximum Shutter Speed	Up to 52 frames per second	Up to 60 frames per second
I/O	N/A	1 input/1 output
Communication	RS-232, USB 2.0 Full-Speed (Ethernet over USB and HID)	Ethernet TCP/IP, EtherNet/IP, PROFINET
Power Input Required	5VDC	IEEE 802.3af PoE-compliant 36 to 57 V, Class 0
Environmental Degree of Protection	IP40	IP40
Housing Dimensions	24.1mm H x 51.5mm W x 38.8mm D	24.1mm H x 40.0mm W x 63.0mm D
Read Range	see product datasheet	see product datasheet
Optional Vision Software	AutoVISION, Visionscape (F320)	AutoVISION, Visionscape (F330)

V420, F420	V430, F430
1D, 2D, Direct Part Marks	1D, 2D, Direct Part Marks
752 (H) x 480 (0.3MP) (V) Mono 1280 (H) x 960 (1.2MP) (V) Mono 2592 (H) x 1944 (V) (5.0MP) Color	752 (H) x 480 (0.3MP) (V) Mono 1280 (H) x 960 (1.2MP) (V) Mono 2592 (H) x 1944 (V) (5.0MP) Color
8 LED White/Red	8 LED White/Red
8 LED, White, Red, Blue, IR	8 LED or 24 LED (Ring Light), White, Red, Blue, IR
Wide, Medium, Narrow, Long Range	Wide, Medium, Narrow, Long Range
50-300mm Autofocus, 75-1200mm Autofocus, Fixed Focus	50-300mm Autofocus, 75-1200mm Autofocus, Fixed Focus
800 MHz	800 MHz
Up to 60 frames per second	Up to 60 frames per second
3 inputs/3 outputs	3 inputs/3 outputs
RS-232C, USB 2.0 High Speed, Ethernet over USB/HID	RS-232C, Ethernet TCP/IP, EtherNet/IP, PROFINET
5VDC	5 to 30 VDC
IP54	IP65/67
25.4mm H x 44.5mm W x 38.1mm D	25.4mm H x 44.5mm W x 44.5 mm D
see product datasheet	see product datasheet
AutoVISION, Visionscape (F420)	AutoVISION, Visionscape (F430)

MicroHAWK Product Family features overview

Mini is the new macro

	V320 F320	V330 F330	V420 F420	V430 F430
1D Omni-directional Barcodes	●	●	●	●
1D/2D Barcodes	●	●	●	●
Damaged Barcodes	●	●	●	●
Direct Part Mark (DPM)	●	●	●	●
Enclosure	IP40	IP40	IP54	IP65/67
EtherNet TCP/IP		●		●
EtherNet/IP		●		●
PROFINET I/O®		●		●
EtherNet over USB	●		●	
Serial (RS-232)	●		●	●
USB 2.0 / HID	●		●	
Power over Ethernet (PoE)		●		●*
2x Illumination Option			●	●
4x Ring Light Option				●
Liquid Lens Autofocus			●	●
High-Density	●	●	●	●
Color Sensor	●	●	●	●
Barcode Quality Check	●	●	●	●
WebLink User Interface	●	●	●	●
AutoVISION Software	F320	F330	F420	F430

*24V Passive Power over Ethernet, Type B

Additional Omron Barcode and Vision Solutions

Your trusted partner in vision

AutoVISION machine vision software

AutoVISION® is the easiest machine vision software available for basic to mid-range vision applications, with no requirement for advanced expertise to successfully deploy a system to cover traceability, inspection and quality control needs. Upgrading to AutoVISION is easy with the MicroHAWK platform.
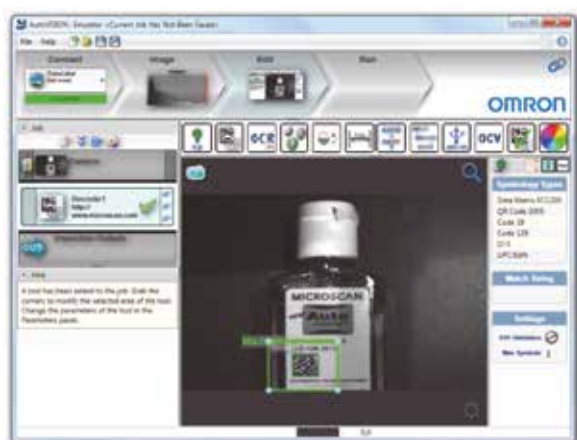
HAWK MV-4000 high-power smart camera

HAWK MV-4000 is a high-performance smart camera that boasts four times the processing power and six times the frame rate of the previous generation, making it a powerful option for all automation needs.

Compact, high-speed laser barcode readers

Omron laser-based barcode readers offer high-speed reading of linear barcodes and stacked symbols within a wide field of view using symbol reconstruction and aggressive decoding technology.

Comprehensive verification solutions

Omron's barcode verifiers, including the LVS-9510 and LVS-9585, are embedded off-line solutions that include camera, software, and precision illumination specifically designed to grade 1D/2D codes and DPMs to ISO/IEC standards.

AutoVISION® is the easiest machine vision software available for basic to mid-range vision applications. Process and manufacturing engineers no longer need to become experts in machine vision in order to successfully deploy a system that meets their traceability, inspection and quality control needs.

HAWK MV-4000 is a high-performance smart camera that boasts four times the processing power and six times the frame rate of the previous generation, making it a powerful option for all automation needs.

Additional Omron Barcode and Vision Solutions

Your trusted partner in vision

FHV7 high-resolution smart camera

The FHV7 Series Smart Camera provides a broad variety of sensors, optics, and lighting with high processing speeds and in a compact footprint while using the powerful FH based image inspection software.

FH multi-camera vision system

Omron's FH Series Vision System is a compact yet powerful solution for advanced defect detection featuring top-of-the-line sensing and processing capabilities to maximize production line performance and flexibility.

Omron Sentech industrial machine vision cameras

The new Omron Sentech area scan and line scan industrial cameras for machine vision, medical, and laboratory applications include models with Camera Link, CoaXPress, GigE, USB 2.0, USB 3.0, analog, UVC, MIPI and HD output.

FHV7-series smart camera provides a broad variety of sensors, optics, and lighting with high processing speeds and in a compact footprint while using the powerful FH based image inspection software.

PC based FH with top-of-the-line sensing, processing capabilities, and machine vision software designed to maximize production line performance and flexibility by matching and exceeding the sensitivity of human vision

Would you like to know more?

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