

FS40 Fixed Industrial Scanner

Comprehensive industrial data capture functionality packaged in a single device

The ultra-rugged FS40 delivers a broad set of capabilities required to meet complex barcode capture requirements, all in a single package. Tailor the device to your specific needs with flexible options, from decode range, illumination and connectivity to power and more. Add advanced capabilities including machine vision with simple software upgrades. And the highly intuitive Zebra Aurora™ software platform delivers the groundbreaking simplicity required to make the FS40 extremely easy to setup, deploy and run.



Features & Benefits

Top 3 Customer Messages

Sets the bar for simplicity — easy to setup, deploy and run: Loaded with features that simplify and automate every phase of operation

1 Easy to setup

- Auto-Tune dials in the perfect image with the press of a button, right out of the box; enables faster and more accurate setup
- High power PoE+ support to power more peripherals while reducing setup complexity and cost — no power drops or power supplies required. No PoE infrastructure? Power with the USB-C port or a standard 24V DC power supply for three flexible ways to power
- USB-C for practically limitless accessory options to maximize process simplicity — connect a Zebra printer and tablet, connect an external storage device to backup your system or save images for future analysis
- IoT ready — send images to Zebra Savanna™ or any cloud service

2 Easy to deploy

- Built-in Ethernet/IP; PROFINET and other network protocols
- Powerful integrated lighting offers the most options in this category and meets the most requirements without the purchase of external lighting
- Designed for industrial spaces — ultra-rugged aluminum body and IP65/IP67 rated sealing, built to handle high power washdowns and immersion in water
- 360° indicator LEDs that can be seen from any angle to easily monitor camera results
- Nine programmable I/O ports for added application flexibility
- Web-based Zebra Aurora HMI dashboard for anywhere anytime system access — no need to install a PC at every station
- Foolproof aiming with a unique 8-point sunburst pattern with sharp laser-generated line

3 Easy to run

- Two Ethernet ports for increased network connectivity options and flexibility
- Unmatched first-time every time data capture with superior optics and PRZM Intelligent Imaging
- Achieve the highest read rates with ImagePerfect+
- Capture 1D, 2D, and DPM codes from pristine to poor condition
- Capture multiple codes of various types with ManyCode and organize the output with our Advanced Data Formatting capability
- Fast troubleshooting with Zebra-only tools such as Golden Image Compare and Job Compare
- Industry leading service — everything is covered, including accidental damage; define your service level with options, including on-site support and next-day replacement device delivery

Key Differentiators

The most powerful software platform — Zebra Aurora™

Single tool simplicity. Use just one tool to manage the FS40, as well as all Fixed Industrial Scanners and Machine Vision Smart Cameras; makes it easy for customers to build out automation solutions and choose the right device for each step in their processes.

Ultra-modern simple interface. Sliders, radio buttons and online help for every aspect of the software make Zebra Aurora so intuitive a beginner can figure it out. Experienced users will appreciate the well designed interface, which enables easy access to all functions and minimal clicks to create and run jobs.

Software upgradeable

Easy upgrades. Your customers can purchase the model that supports the barcodes and the scanning speed needed today, and easily upgrade to support more symbologies, faster scanning speeds and machine vision tools tomorrow — all with the simple purchase of a software license.

Unsurpassed return on investment. Your customers can count on the device they buy today to meet their needs in the future — the FS40 can adapt as business needs change.

Applications







Enable track and trace in:

- Automotive
- Food and Beverage
- Medical/Pharma
- Robotics
- Semiconductor and Electronics
- Transportation and Logistics









Competitive Highlights

The following chart provides general hardware specifications for the FS40 and its key competitive devices.

	Zebra FS40	Cognex Dataman 374	DataLogic Matrix 220	DataLogic Matrix 320	Keyence SR-2000	Sick Lector 63X	Why it matters/the FS40 advantage
							
Hardware Features: GENERAL							
Dimensions	mm: 54 x 64 x 91.4 in.: 2.1 x 2.5 x 3.6	mm: 73 x 54 x 42 in.: 2.9 x 2.1 x 1.6	mm: 78 x 47 x 38 in.: 3.1 x 1.8 x 1.5	mm: 108.7 x 54 x 55.5 in.: 4.3 x 2.1 x 2.2	mm: 55 x 38.7 x 55 in.: 2.2 x 1.5 x 1.6	mm: 91 x 63 x 45 in.: 3.6 x 2.5 x 1.6	Size is not a crucial metric for this product. Sizes are provided for your convenience should the customer ask — and to illustrate that all devices in this category are similarly sized.
Monochrome/Color	Monochrome	Monochrome	Monochrome	Monochrome	Monochrome	Monochrome	Monochrome sensor is standard for this product class, sufficient for 99% of the barcodes in this product class.
Lens Type	Liquid lens	Liquid lens or C-Mount	Electronic mechanical	Liquid lens	Electronic mechanical	Manual	Liquid lenses offer several technology advantages. Moving parts typically found in mechanical lenses are eliminated, and the lenses are designed to focus across a variable working distance. Despite these advantages, many of your customers will likely have a personal preference for lens type, but what is most important about lens type is how the lens technology is used. Liquid lens technology is key in enabling ImagePerfect+, which is a major competitive differentiating feature that delivers dependably high read rates.

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Hardware Features: GENERAL (continued)							
Lens Options	Standard Wide	S-Mount Liquid C-Mount	Standard Wide	Standard Wide	Standard Ultra-wide High resolution	S-Mount Liquid C-Mount	Competitive devices with more lens options than the FS40 will promote flexibility and configurability as an advantage. But the FS40 has been optimized to handle 80% of the use cases with its SR and WA lens options, reducing the number of configurations your customer needs to purchase and manage. If your customers have an application that requires more customization, the FS40's C-Mount capabilities meets those demands.
Aimer	Laser	Optional (accessory add-on)	LED	Laser	LED	Optional laser or LED	Customers will likely have their own preference. Laser allows for better power and visibility to best support performance, but some companies and users may have safety concerns. While LEDs are safer, they tend to be much less visible and powerful, potentially impacting performance. And note that the aimer can always be turned off via software. Check the PRG for Laser Safety Certifications.
Industrial Protocols	Ethernet IP, PROFINET, MODBUS TCP	Ethernet IP, PROFINET, MODBUS TCP	Ethernet IP, PROFINET, MODBUS TCP, OPC UA	Ethernet IP, PROFINET, MODBUS TCP, OPC UA	Ethernet IP, PROFINET, MC Protocol, Omron PLC Link	EtherNet IP, PROFINET	While some models support more protocols, the FS40 supports the most important protocols for the targeted markets: Ethernet IP and PROFINET. Note that support for more protocols will be added in the future as the product line matures.

Competitive Highlights

The following chart outlines the key differences between the FS40 and its main competitors. Blue shading indicates a best-in-class feature.

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Hardware Features: COMPARISONS							
Sensor	2.3 MP	3.1 MP	1.2 MP	2 MP	3 MP	1.3 MP 1.9 MP	<p>The higher the resolution, the smaller the code you can read in the field of view. While this is a general statement, the quality of the decode algorithm also plays a role in how one device will perform over another — and Zebra’s decode algorithms are known all over the world for their superior performance and is why Zebra owns many global markets, such as retail.</p> <p>Just because a sensor has more pixels doesn’t mean that competitive products will be able to read with larger field of views or less pixels per element. The best way to find out if resolution is ample is to actually test the application using the FS40. The FS40’s optical quality is top of the line. Special attention was given during design to ensure that image quality at the edges is superior to that of the competition. This factor could play a big role in winning opportunities.</p>
Frames/Second	Up to 60	Up to 80	Up to 45	Up to 60	Minimum of 40	Up to 50	<p>For the best decoding you need three things: a fast frame rate, great image quality and the best decode algorithms. Just because the FS40 doesn’t offer the fastest frame rate doesn’t mean it will deliver inferior performance on a fast conveyor. Supporting high-speed conveyors takes more than a high frame rate — it also requires fast decode times. The system must be capable of capturing the image AND decoding the barcode at high speed — and the frames per second metric does not correlate to decode performance. Decode performance is dependent on the decode algorithms — and as the world’s leader for many years in barcode scanning, Zebra is known for its superior decoding technology. Customers need to test devices to ensure that the product they are considering has the frame rate AND the decoding performance required to successfully capture barcodes on items on their fast moving conveyors. If you find yourself in a sales opportunity where customers have fast moving conveyors, the best way to overcome concerns is to put the FS40 to the test on the customer’s conveyor.</p>

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Hardware Features: COMPARISONS (continued)							
USB	Yes — comms, power and peripheral support (USB-C)	No	No	No	Yes — but limited to setup only	Yes — but limited to comms and power	The FS40 is the only device in its class to offer maximum USB functionality. The USB-C port can be used to set up the device, power the device and connect any USB-enabled peripherals, such as a Zebra tablet and/or printer.
Ethernet	10/100/1000	10/100/1000	10/100	10/100/1000	10/100	10/100/1000	Support for the latest and fastest Ethernet protocol, Gigabit Ethernet, provides crucial support for higher resolution cameras like the FS40 that capture larger image files, as well as fast paced environments that require the constant and rapid transfer of large files.
Dual Ethernet	Yes	No	No	No	No	No	The FS40 is the only product in its class to offer dual Ethernet ports, providing a major competitive advantage. This optional feature enables customers to connect to the controls network via an isolated connection that protects key production data, while also providing the flexibility to connect to a local or cloud-based server to store images for more detailed trending or analysis — or to comply with industry recordkeeping regulations.
PoE	PoE and PoE+ (all models)	No	PoE (no PoE+); select models only	No	No	No	The FS40 is the only device in its class to offer PoE and PoE+, providing several competitive advantages. Installation is easier and less expensive since power drops, outlets and power supplies are not required. And PoE+ delivers the additional power required to support the advanced features of the FS40, such as the integrated lighting, as well as additional peripherals that might be required to maximize process efficiency and error-proofing.

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Hardware Features: COMPARISONS (continued)							
Power Options	PoE Power supply USB-C	Power supply	PoE Power supply	Power supply	Power supply	Power supply	Only the FS40 offers your customers three power options: PoE/PoE+, power supply and USB-C. Your customers get the flexibility required to choose the easiest, most efficient and most cost-effective means of powering the FS40.
IP Rating	IP65 IP67	IP67	IP65 IP67	IP65 IP67	IP65	IP67	Sealing is crucial in this environment to ensure reliability — the double sealing rating delivers the industrial robustness required on the production line — the FS40 is dust tight, built to handle high-power washdowns and even total immersion in water.
Programmable Input/Output Ports	Up to 9 digital I/O ports, all fully configurable	2 inputs, 2 outputs, configurable	2 inputs 3 outputs	2 inputs 3 outputs	2 inputs 3 outputs	2 inputs 4 outputs	If your customers need GPIO, the FS40 offers the most available and configurable ports in its class. The result is increased application flexibility, enabling integration of additional peripherals, activation of lights or triggering of additional actions to more fully automate and error-proof processes.
Operating Temperature	32° F to 104° F 0° C to 40° C	32° F to 134.6° F 0° C to 57° C	-14° F to 122° F -10° C to 50° C	32° F to 113° F 0° C to 45° C	32° F to 113° F 0° C to 45° C	32° F to 122° F 0° C to 50° C	The operating temperature range for the FS40 appears to be a weakness, but when you dig into the details, you'll discover that safe operation at the higher temperatures in some competitive products requires additional accessories, such as heat sinks. The operating temperatures listed for the FS40 do not require the purchase and management of any additional components. Most of the products share the same low end of the operating temperature. While a few of the competitive products do have a higher upper operating temperature rating, most environments will not be that warm. Application requirements are also a consideration. A different heat profile is required for devices that are triggered once every 10 seconds versus devices that are triggered constantly.

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Software Features: COMPARISONS							
Barcode Quality Metrics	Yes	Yes	Yes	Yes	Yes	Yes	Tablestakes for this class of products — compares the barcode to industry standards to a) determine the quality of the barcode and b) help assess whether barcode quality is impacting the ability to scan and eroding throughput.
OCR	Yes	No	No	No	No	No	Unique feature for this class of product that is crucial in healthcare and food and beverage. Enables verification that expiration and/or lot code are present, printed properly and legible on products to protect patient and consumer safety. Can be purchased with OCR out of the box or added later via a simple software license.
Single Unified Software Platform	Yes	No	No	No	No	No	Zebra Aurora is the easiest to use tool in the industry, heavily driven by wizards for foolproof management, designed for beginners as well as experts. The FS40 and Zebra's complete portfolio of Fixed Industrial Scanners and Machine Vision Smart Cameras are all managed by the Zebra Aurora unified software platform, eliminating the complexities, time and cost associated with using different management tools for different devices.
Upgradeable	Yes	No	No	No	No	No	Customers can choose the FS40 with the software features they need now, and simply purchase a software license to upgrade to add support for new symbologies, faster scanning speed and machine vision tools, allowing workers to turn the FS40 into a VS40 Smart Camera. The result? The device your customers buy today can adapt to meet new business needs, delivering a superior return on investment.

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Software Features: COMPARISONS (continued)							
ImagePerfect+	Yes	No	No	No	No	No	Additional cameras, external lights or complex custom code are often required when lighting is uneven or barcodes are at varying distances from the camera. A ground-breaking new software feature, ImagePerfect+, eliminates this expense. ImagePerfect+ takes up to 16 different images in one trigger event, each with their own definable setting for focus, exposure, gain, illumination control and more.
Golden Image Compare	Yes	No	No	No	No	No	If a barcode read fails, this Zebra-only tool allows you to compare the failed barcode to a golden 'perfect' image created at setup to quickly and easily identify and resolve the source of image degradation — from a dirty lens or lighting problem to misalignment of the camera.
Job Compare	Yes	No	No	No	No	No	This unique Zebra-only tool compares current settings in the job and camera to all initial settings. If settings were inadvertently changed, just one click restores all initial settings, enabling rapid troubleshooting and issue resolution.

Qualifying Questions

Q Are you looking to automatically track and trace items as they move through the production line, warehouse and distribution center to increase workforce productivity and inventory visibility?

A The FS40 has what it takes to get the job done. Whether you need to track and trace parts moving down your production line, finished goods in your warehouse or parcels and packages in your distribution center, the FS40's comprehensive feature set provides the exceptional flexibility you need to automate every possible aspect of your track and trace processes. With USB-C, you can connect whatever accessories you need, from a printer or tablet to a mouse and keyboard. Nine programmable digital input and output ports can be controlled individually, enabling easy integration into existing and new applications — and expansion of functionality to simplify and streamline processes. For example:

- Activate status or stack lights to direct workers to the next proper step to take.
- Automatically trigger an action or series of actions: For example, automatically print a label to route an item coming off the production line to the shipping dock to fulfill a backorder — instead of delaying shipment while the item is placed on a warehouse shelf, waiting for the generation of a pick order

When it comes to scanning functionality, the powerful integrated lighting will eliminate the need, time and cost to purchase, deploy and manage external lighting in most situations. Choose from white, red, blue and infrared wavelengths, plus a multi-spectral lighting module that combines all the wavelengths, allowing you to dynamically select the color required to achieve the best contrast for robust extraction of barcodes on any surface. With dual Ethernet connections, you can do more than just plug the FS40 into your PLC network. For example, store images on a cloud or onsite server to:

- Enable rich trend analysis to proactively spot issues before they impact productivity and product quality
- Store files to comply with industry record keeping regulations in pharmaceutical, automotive and aeronautics manufacturing

And with ImagePerfect+, you can count on the highest read rates. This Zebra-exclusive feature is an industry first. Instead of a single scan capturing one image, it captures up to 16 unique images, each with its own setting for focus, exposure, gain, illumination control and more, making it 16 times more likely to capture a perfect image.

Q Do your current fixed industrial scanners have complicated management tools? And do your fixed industrial scanners and machine vision smart cameras have different management tools?

A Consider the FS40 for replacement. The modern user interface in the Zebra Aurora software couldn't be easier or more intuitive — ideal for beginners and experts alike. The single software platform controls Zebra's entire line of Fixed Industrial Scanners and Machine Vision Systems, allowing you to select the right device for each application, without the added complexity of different software tools to manage different models. And you can upgrade the FS40 with new symbologies and machine vision capabilities with the purchase of a simple software license. As a result, you can be confident that the device you buy today can adapt to address new needs, ensuring usability every day of its lifecycle.

Sales/Reference Materials

The Source (for internal Zebra only):
<https://zebra.showpad.biz>

FS40 Product Page:
www.zebra.com/fs40

Partner Gateway:
<https://partnerportal.zebra.com>

Services:
www.zebra.com/zebraonecare

Support pages:
www.zebra.com/support

Accessories

Accessories for the FS40 include:

- Internal lighting
- External lighting
- Filters
- Power supplies
- Power cords
- USB cables

Objection Handling

Plant Engineer	IT Manager
<p>“Ramp up time is a concern. Our business is so fast paced and our customers have such high expectations that we just can’t afford the risk of switching manufacturers right now.”</p>	<p>“We’re concerned about the fact that Zebra is new to this market. We want to buy tried and proven technology — hardware and software.”</p>
<p>RESPONSE:</p>	<p>RESPONSE:</p>
<p>That’s the beauty of the FS40 — it’s loaded with powerful software and hardware features that not only enable you to get the FS40 up and running quickly — but also require much less day-to-day management effort.</p> <p>Start with the Zebra Aurora software platform. Zebra Aurora sets the bar for management platforms for fixed industrial scanners and machine vision systems. The modern and intuitive graphical user interface makes it so easy to set up, deploy and run the FS40 that even a beginner can do it — and your experts will appreciate how practically every tool and function can be accessed with just a click or two.</p> <p>There are many Zebra-only features that simplify every aspect of this solution. During setup, Auto-Tune dials in the perfect image with the press of one button. ImagePerfect+ ensures the capture of the perfect image every time — especially when lighting conditions aren’t the best and the barcodes you need to capture are presented at different distances. Golden Image Compare enables workers to rapidly identify and correct the reasons why an image failed, preventing costly unplanned downtime. And more.</p> <p>The FS40 hardware has many differentiating features as well, including dual Ethernet ports, the most robust integrated lighting in its class and PoE for easy installation. Just purchase a simple software license to support new symbologies and add machine vision tools to turn your FS40 into a Smart Camera.</p>	<p>While Zebra is new to this line of products, Zebra is the #1 market leader in many of the technologies that are in these products. That’s why Zebra decided to enter this market — all the foundational technologies in the devices represent Zebra’s core competencies, proven all over the world: companies of all sizes in virtually every vertical market count on Zebra’s barcode scanning and imaging technologies to streamline their business processes for a competitive edge. Zebra offers:</p> <ul style="list-style-type: none"> • Global leadership: #1 in data capture, mobile computing, barcode printing and mobile RFID hardware.¹ • Zebra’s Fixed Industrial Scanner and Machine Vision portfolio expands upon a 50+ year legacy of data capture innovation and intelligent edge solutions that leverage computer vision, AI and more into traditional line-side industrial automation applications. The unique unified software-led approach is driven by a deep understanding of workflows and customer needs that enable enterprises to do business better, smarter and faster than ever before. • Highly qualified channel partners chosen for their comprehensive FIS/MV expertise and experience, working together with Zebra to bring you the breadth and depth of knowledge required to deliver highly successful industrial automation solutions. • 4,900+ US and international patents issued and pending — Zebra creates core technologies that drive business efficiency • \$4.5 Billion in revenue (2019) • Global offices in 45 countries

1. Source: VDC Research and Zebra analysis



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Services

The FS40 and all Zebra Fixed Industrial Scanners and Machine Vision Smart Cameras are backed by a standard 2-year warranty. **Zebra OneCare® Support Services** go beyond the standard warranty to cover it all — helping to eliminate unexpected repair costs and maximize device uptime.

With Zebra OneCare contracts, customers get repair, technical and software support; options such as on-site service and next-day shipping of replacement devices; and access to VisibilityIQ™ OneCare to easily track devices in the repair cycle.

Zebra OneCare Essential:

- Comprehensive repair services
- 3-day repair turnaround time
- VisibilityIQ OneCare
- Full access to technical support resources
- Rights to download and use software releases
- 3- or 5-year coverage

Zebra OneCare Select:

All Zebra OneCare Essential features, plus:

- Advance device replacement
- 24/7 Level I support
- 3 or 5 year coverage

Refer to Solutions Pathway for the most up-to-date information, including global availability and pricing.