# FS42 Fixed Industrial Scanner

## An unbeatable combination of features, flexibility, and power

In today's business landscape, the escalating demands of global commerce and its intricate supply chain exert more pressure than ever on companies to enhance productivity and accelerate delivery timelines. In manufacturing and logistics, a critical aspect of success lies in managing and tracking the essential products fueling your enterprise.

Zebra's FS42 fixed industrial scanner is a powerful solution crafted to meet the demanding needs of modern production and delivery processes. Engineered to seamlessly integrate into high-volume scanning operations that require robust processing power, the FS42 ensures efficient track-and-trace capabilities by accurately decoding information from every component and package that moves through the manufacturing, storage, and fulfillment phases.




Even the most challenging barcodes are captured quickly, enabling top-tier performance across production, warehousing, distribution, and logistics sectors, empowering businesses to keep pace with evolving customer demands.

At the core of the FS42 is Zebra Aurora Focus™, an intuitive software platform tailored for easy setup, deployment, and operation of all Zebra fixed industrial scanners. With exclusive features such as ImagePerfect+ and Golden Image Compare, expect unmatched data capture precision from the get-go.

As your needs progress beyond scanning, the FS42 has the processing power and increased memory capacity to take on resource-intensive applications like deep learning-based OCR and advanced machine vision inspection jobs. New tools can be added through the simple purchase of a software license to secure your investment for the future. Enhance your operational visibility and propel success to unprecedented levels with the FS42—exclusively from Zebra.

### Zebra Aurora Focus software

Zebra's Aurora Focus introduces a seamless, consolidated platform for managing Zebra's machine vision portfolio. This innovative software elevates the control of manufacturing and logistics automation across the enterprise with its refined simplicity and efficiency. With Aurora Focus, users can effortlessly set up, deploy, and operate all Zebra fixed industrial scanners, vision sensors, and machine vision smart cameras and streamline operations by eliminating the need requirement for multiple tools.

#### Simple from day one

Seasoned professionals and newcomers can intuitively navigate through the user-friendly modern interface, slashing training and deployment times. Experienced users will enjoy seamless access to all features and streamlined procedures, while beginners are walked through each step in a logical sequence. Users needing assistance can leverage the Learn-As-You-Go feature, which provides built-in tutorials, walk-throughs, and videos covering every facet of the software and its extensive management toolkit.

**The FS42—Elevate capabilities. Unlock possibilities. Experience the difference with Zebra.**
For more information, please visit www.zebra.com/fs42.

## Short learning curves

### Get power & data from Ethernet
Power the FS42 and attached accessories using the network with support for Power-over-Ethernet (PoE), simplifying setup and avoiding the cost of power drops and power supplies. You can also power the FS42 with a standard 24 V DC power supply or standard USB-C port in environments without PoE.

### One button setup with Auto-Tune
Simply activate Auto-Tune and achieve consistent, dependable read rates. With just one button press, Auto-Tune dials in the perfect image, facilitating quicker and more precise setup.

### USB-C flexibility
With USB-C, users can power the FS42 using a single cable and integrate the scanner with various Zebra devices such as printers or tablets. Additionally, users can back up the system or store images for later analysis by connecting external storage devices to the FS42.

### Quickly access device and job settings
The highly intuitive modern interface presents logical workflows. No need to hunt for needed features and functions—they are just a click or two away. Even complicated settings are easy to execute with presented as sliders and radio buttons.

## Fast deployment

### Integrated lighting and multifunctional light support
Zebra's FS42 features a powerful integrated illumination system available in red, white, infrared, or a model that includes them all. The FS42 also supports Zebra's Integrated Multifunction Light (ZIML), which is available in white, red, or infrared and offers 10x standard light output via DualOverDrive mode, direct strobe control through camera trigger, and dual dot lasers for conveyor setup or continuous use in manual stations.

### Programmable input/output (I/O)
Individually control up to nine digital I/O ports to increase application functionality and improve error proofing. You can add peripherals, activate lights, or trigger an action to more fully automate your processes.

### Status indicators/operator feedback
Your operators can instantly review decode statuses with 360-degree LED lights. Workers can see at a glance whether a decode was successful or unsuccessful—preserving product quality and traceability. Make it easy to verify whether cameras are fully operational or in need of attention with five built-in camera status LEDs—Power, Online/Run, Focus Warning, Error, and Ethernet Status. For added safety, a beeper with adjustable volume provides an audible cue of a successful decode, so workers can keep their eyes on the job—instead of the device.

### Tough and reliable
The ultra-rugged design ensures dependable operation in even the most demanding environments. The aluminum housing is chemical and oil resistant. IP65 and IP67 sealing ratings mean the device is dust tight and able to withstand high-power washdowns—or even total immersion in water.

### Real-time performance insights
Empower workers with actionable intelligence at their workstation. Operators have access to key metrics for every camera from your web browser, including device health, resource utilization, decode results, and scan performance metrics. Eliminating the need to install a PC at each workstation reduces hardware needs and installation expenses.

### Simple aiming
A unique eight-point sunburst pattern with sharp, laser-generated lines makes it easy to ensure that barcodes are in the field of view for foolproof, reliable aiming—and faster deployment.

## Easy to run

### Read all barcodes simultaneously
Need to read multiple barcodes on an item? Enable ManyCode mode to capture all barcodes simultaneously, regardless of quantity, symbology, or barcode data.

### Worry-free coverage with complete support
Achieve the consistent peak performance and device uptime that modern businesses require with Zebra OneCare™ Essential and Select Support Services. Avoid unexpected disruptions and unplanned repair costs. With comprehensive coverage, everything is taken care of—including normal wear and tear and accidental damage. Tailor your support plan with a range of options to match your business needs, such as next-day delivery of replacement devices, on-site support, cloud-based access to your contracts, repair data, tech support cases, and beyond.

### Keep your data safe
The FS42 does it all—1D, 2D, and DPM barcodes, plus deep learning-based OCR. Select the setup that accommodates the codes essential for your current business operations with the assurance that you can enhance functionality to adapt to future data capture requirements. Simply acquire licenses to accommodate additional barcode symbologies or enhanced scanning speeds. Alternatively, upgrade to a machine vision toolset to transform your FS42 into a smart camera, equipped with comprehensive machine vision capabilities.

### ImagePerfect+ ensures highest read rates
Uneven lighting and the need to read barcodes at various distances can require additional cameras, external lights, or complex custom code, all of which add cost. ImagePerfect+, a Zebra-exclusive feature, captures up to 16 different images of a single item, each with its own unique setting for focus, exposure, gain, illumination control, and more. The result? High-quality images that enable high read rates, significant reduction in solution complexity, and lower total cost.

### Powerful imaging technology
With an optimized combination of CMOS image sensor (2.3 or 5 MP), integrated or add-on multifunctional lighting, and optics, the FS42 delivers reliable data capture that enables your lines to run at the speeds you need. The device can capture multiple barcodes simultaneously, extend read ranges and focal distances, and provide a larger field of view to gather more information with less equipment. The FS42 is designed to meet demanding data capture requirements, facilitating the initial capture of nearly any barcode even in challenging conditions. This includes damaged or poorly printed 1D and 2D barcodes on swiftly moving conveyor belts, as well as challenging under-or over-marked DPM codes printed on curved and reflective surfaces.

## Power your performance

The FS42 is loaded with class-leading features, including:

### Ultra-Fast processor
The FS42's quad core processor has the power to expedite scanning throughput and is optimized to accelerate artificial intelligence and machine vision-based applications.

### Increased memory capacity
The FS42 has the memory to accommodate expanding application needs. Featuring twice the memory of other FS models at 8 GB, the FS42 can handle more complex scanning and machine vision use cases without sacrificing performance.

## Software licensing

**Add what you need, whenever you need it**
Add support for new barcode symbologies, faster barcode capture, and machine vision tools through a software license upgrade.

### Deep learning-based OCR
Leverage AI-derived tools to easily capture text information from parts on the production line or labels on boxes with no font training required—just draw a box around the text you want to read.

### Good limage anomaly detection
Automate part of the QA process by using machine vision to compare images of products against a golden standard reference image. Any deviations are flagged for inspection, saving you time and resources.

# Specifications

| Device Characteristics | |
|---|---|
| **Dimensions** | 2.1 in. H x 2.5 in. W x 3.6 in. D<br>54.0 mm H x 64.0 mm W x 91.4 mm D |
| **Weight** | 14.1 oz./400.0 g |
| **Power** | External power supply: 10–30 VDC, 1.5 A max @ 24 VDC (36 W max)<br>PoE+ supply: Class 4, 25.5 W max<br>PoE supply: Class 3, 13 W max<br>USB-C host: 5 VDC, 3 A max (15 W max) |
| **Configurable IO** | Four opto-isolated GPIO: GPIO0,1,2,3<br>Five non-isolated GPIO: GPIO4,5,6*,7*,8*<br>Voltage GPIO: 10–30 VDC<br>*Unavailable when External Light Mode is enabled |
| **Color & Material** | Industrial green aluminum housing |
| **Interface Ports** | One M12 X-Coded 1000/100/10 Mbps Ethernet*<br>One M12 12-pin Power/GPIO/RS-232<br>One M12 5-pin External Light Power & Control/GPIO<br>One USB 3.0 SuperSpeed Type-C with DisplayPort Alt Mode<br>*Available with one Ethernet port; PoE is only supported by the primary Ethernet port |
| **Communication Protocols** | Ethernet/IP, PROFINET, Modbus TCP, TCP/IP, RS-232 |
| **Keyboard Support** | USB HID |
| **User Indicators** | 360° decode/job status LEDs, power LED, device status LED, focus status LED, warning LED, ethernet status LED; beeper (adjustable volume) |
| **Performance Characteristics** | |
| **Image Sensor** | **2.3MP**: 1/2.6" CMOS, global shutter 1920 x 1200 3.0 µm square pixels Monochrome<br><br>**5 MP**: 1/2.5" CMOS, global shutter 2592 x 1944 2.2 µm square pixels Monochrome |
| **Acquisition Rate** | 2.3 MP: Up to 60 frames/second<br>5 MP: Up to 42 frames/second |
| **Aimer** | Red Class II Laser; 8-point sunburst pattern |
| **Illumination** | Field replaceable modules:<br>· Eight 660 nm Red LEDs<br>· Eight 850 nm IR LEDs<br>· Eight 2700K (Color Temperature) White LEDs<br>· Four 660 nm Red LEDs + Eight 850 nm IR LEDs + Eight 2700K (Color Temperature) White LEDs |
| **Imager Field of View** | SR (Standard Range): 10.8 mm Liquid Lens<br>30° H x 19° V Nominal<br>WA (Wide Angle): 6.8 mm Liquid Lens<br>46° H x 29° V Nominal |

| User Environment | |
|---|---|
| **Operating Temp.** | 32°F to 113°F/0°C to 45°C (10–30 VDC external power supply, duty cycle dependent)<br>32°F to 104°F/0°C to 40°C (POE, duty cycle dependent) |
| **Storage Temp.** | -40°F to 158°F/-40°C to 70°C |
| **Environmental Sealing** | IP65 and IP67 |
| **Humidity** | 5%–90% RH, noncondensing |
| **Shock Resistance** | EN 60068-2-27, 30 g; 11 ms; 3 shocks on each axis |
| **Vibration Resistance** | EN 60068-2-6, 14 mm @ 2–10 Hz, 1.5 mm @ 13–55 Hz; 2 g @ 70–500 Hz; 2 hours on each axis |
| **Supported Symbologies**[1] | |
| **1D** | Codabar, Code 39, Code 93, Code 128, I 2 of 5, MSI Plessey, UPC/EAN |
| **2D** | Aztec, Data Matrix, DotCode, MaxiCode, PDF417, Micro PDF417, QR Code, Micro QR |
| **OCR** | Deep learning-based OCR via an add-on license. Supports Latin letters (A–Z, a–z, digits or any of: !#$%&()*+,-./:;<=>?@ []^_`{\|}~"'\€£¥) |
| **Software** | |
| **Management** | Zebra Aurora Focus |
| **Decoder Packages** | 1D/2D Fast (60 FPS); 1D/2D DPM Full (60 FPS)<br>Connectivity Gateway Solution License |
| **Machine Vision (MV) Toolsets** | Sensor, Standard (available via an upgrade license) |
| **Regulatory** | |
| **Environmental** | EN 50581:2012; EN IEC 63000:2018 |
| **Electrical Safety** | IEC 62368-1 (Ed.2); EN 62368-1:2014/A11:2017 |
| **Laser Safety** | 21CFR1040.10 & 21CFR1040.11<br>IEC/EN 60825-1:2014 (Ed.3) |
| **LED Safety** | IEC 62471:2006 (Ed.1); EN 62471:2008 |
| **EMI/EMS** | EN 55032:2015/A11:2020 (Class B)<br>EN 55035:2017<br>EN 61000-3-2:2014 (Class A)<br>EN 61000-3-3:2013<br>47 CFR Part 15, Subpart B, Class B<br>ICES-003, Issue 7, Class B |
| **EU Declaration of Conformity** | 2014/30/EU; 2014/35/EU; 2011/65/EU.<br>For more information, visit:<br>www.zebra.com/doc. |
| **Accessories** | |

## Markets and Applications

**Transportation and Logistics**

- Barcode reading and OCR
- Dock door
- Forklift scanning
- Conveyor routing
- Scan tunnels
- Product aggregation
- Process control
- Tote and container ID

**Manufacturing**

- Barcode reading and OCR
- Anomaly detection
- Batch reading
- Long-range identification (automotive)
- High-resolution code reading (electronics)
- Tire barcode, label identification, sorting, and tracking

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|---|
| Internal illumination, external illumination (including Zebra's ZIML multifunction light), internal filters, brackets, cables, power supplies. |
| **Warranty** |
| Subject to the terms of Zebra's hardware warranty statement, the FS42 is warranted against defects in workmanship and materials for a period of Two (2) Years from the date of shipment. Complete Zebra hardware product warranty statement: www.zebra.com/warranty. |
| **Recommended Services** |
| Zebra OneCare™ Select; Zebra OneCare™ Essential |
| **Footnotes** |
| 1. Refer to Product Reference Guide for complete list of symbologies. |

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