OEM Automatic Ltd
Address: Whiteacres, Whetstone Leicester, LE8 6ZG
0116 284 9900 | Orders@oem.co.uk | www.oem.co.uk

ZEBRA FS42 CODE READER

FS42-WA51G4-3C00W
FS42, Wide Angle, 5 MP, Fast 2D Decoder w/ DL OCR, Ethernet with POE, Serial, USB and Industrial Protocols, White LED, No Filter - Worldwide



- Integrated focus and lighting
- 2.3 Megapixel Resolution
- 3.0 µm Pixels
- 60 fps

PRODUCT DESCRIPTION

The Zebra FS42 is a robust fixed industrial barcode scanner designed for demanding environments like manufacturing, logistics, and distribution. It comes in 2 MP (1920 × 1200) and 5 MP (2592 × 1944) global-shutter sensor options, capturing up to 60 fps (2.3 MP) or 42 fps (5 MP). Powered by an ultra-fast quad-core CPU, a Neural Processing Unit (NPU), and 8 GB of onboard memory, the FS42 accelerates complex scanning, deep learning-based OCR, and machine-vision tasks. There are various connection options such as PoE or 24 V DC, plus USB-C (power, data, external storage, and accessory integration). Interfaces include Ethernet/IP, PROFINET, Modbus TCP, TCP/IP, RS-232, and USB HID, with up to nine programmable digital I/O ports. The rugged design features aluminium housing, IP65/67 sealing, chemical and oil resistance, shock (30 g) and vibration tolerance, and built-in lighting with selectable red, white, blue or infrared LEDs, along with a laser sunburst aimer for precise alignment.
The FS42 excels in high-speed, high-volume scanning environments, capable of reading multiple 1D, 2D, and DPM barcodes, and even direct part marks, simultaneously using ManyCode and ImagePerfect+ technologies, which capture up to 16 images per target with optimised settings like focus, exposure, gain, and lighting. Zebra's PRZM Intelligent Imaging handles tough conditions: damaged, poorly printed, curved, or reflective surfaces are no problem. The scanner can be upgraded via software licenses to add deep-learning-based OCR or full machine-vision (MV) toolsets for tasks such as OCR without font training, good/bad image anomaly detection, dimensioning, defeat detection, label presence checks, and visual inspections. Configuration and deployment are streamlined through Zebra's Aurora Focus™ software, an intuitive interface with auto-tune, built-in tutorials, and diagnostic dashboards accessible via web HMI, greatly reducing setup time and easing deployment for both novice and advanced users.

TECHNICAL DATA

Focus	Liquid lens
Frame Rate Max	42
Interface out	Ethernet with POE, Serial, USB & Industrial Protocols
Javascript Support	Yes
Lighting	White
Pixel Size	2.2 x 2.2 µm
Size	54.0 x 64.0 x 91.4 mm
Software performance	Wide Angle, Fast 2D Barcode Decoder W/ DL OCR
Type of lens	Wide angle

Type of scanner	Fixed Scanner

Decode Ranges (Typical Working Ranges)[3]

FS42-SR—30° FOV Lens

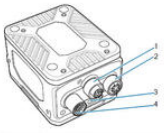
Symbology/Resolution	Near	5MP-SR Far
5 mil Code 128	3 in./8 cm	33 in/83 cm
10 mil Code 128	3 in./8 cm	65 in/166 cm
15 mil Code 128	3 in./8 cm	98 in/249 cm
20 mil Code 128	3 in./8 cm	131 in/332 cm
5 mil DataMatrix	3 in./8 cm	17 in/44 cm
10 mil DataMatrix	3 in./8 cm	35 in/89 cm
15 mil DataMatrix	3 in./8 cm	52 in/133 cm
30 mil DataMatrix	3 in./8 cm	105 in/267 cm

FS42-WA—46° FOV Lens

Symbology/Resolution	Near	5MP-WA Far
5 mil Code 128	3 in./8 cm	20 in/52 cm
10 mil Code 128	3 in./8 cm	41 in/104 cm
15 mil Code 128	3 in./8 cm	62 in/157 cm
20 mil Code 128	3 in./8 cm	82 in/209 cm
5 mil DataMatrix	3 in./8 cm	11 in/28 cm
10 mil DataMatrix	3 in./8 cm	22 in/56 cm
15 mil DataMatrix	3 in./8 cm	33 in/84 cm
30 mil DataMatrix	3 in./8 cm	66 in/168 cm

Connections

The device supports connections for USB-C with DisplayPort, power serial and GPIO, x-coded Ethernet, and external lighting.



1	External Lighting
2	X-Coded Ethernet Port
3	USB-C (with DisplayPort)
4	Power Serial and GPIO

Power and IO Connector

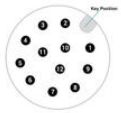


Table: Power and I/O Connector Pinout Diagram

Pin	Color	Description
1	Yellow	GPIO2
2	White/Yellow	TXD
3	Brown	RXD
4	White/Brown	GPIO4
5	Violet	GPIO5
6	White/Violet	COMMON_IN
7	Red	DC_IN
8	Black	GND
9	Green	COMMON_OUT
10	Orange	GPIO0
11	Blue	GPIO1
12	Grey	GPIO3
SHELL	Bare	SHIELD

Ethernet Connector

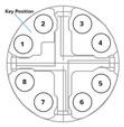


Table: Ethernet Connector Pinout Diagram

Pin	Description
1	TP1+
2	TP1-
3	TP2+
4	TP2-
5	TP4+
6	TP4-
7	TP3-
8	TP3+
SHELL	SHIELD

External Light Connector



Table: External Light Connector Pinout Diagram

Pin	Color	Description
1	Brown	DC_OUT / GPIO8
2	White	GPIO7
3	Blue	GND
4	Black	GPIO6
5	Grey	ANALOG_OUT
SHELL	Bare	SHIELD

Decode Ranges (Typical Working Ranges)[3]

FS42-SR—30° FOV Lens

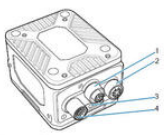
Symbology/Resolution	Near	5MP-SR Far
5 mil Code 128	3 in./8 cm	33 in/83 cm
10 mil Code 128	3 in./8 cm	65 in/166 cm
15 mil Code 128	3 in./8 cm	98 in/249 cm
20 mil Code 128	3 in./8 cm	131 in/332 cm
5 mil DataMatrix	3 in./8 cm	17 in/44 cm
10 mil DataMatrix	3 in./8 cm	35 in/89 cm
15 mil DataMatrix	3 in./8 cm	52 in/133 cm
30 mil DataMatrix	3 in./8 cm	105 in/267 cm

FS42-WA—46° FOV Lens

Symbology/Resolution	Near	5MP-WA Far
5 mil Code 128	3 in./8 cm	20 in/52 cm
10 mil Code 128	3 in./8 cm	41 in/104 cm
15 mil Code 128	3 in./8 cm	62 in/157 cm
20 mil Code 128	3 in./8 cm	82 in/209 cm
5 mil DataMatrix	3 in./8 cm	11 in/28 cm
10 mil DataMatrix	3 in./8 cm	22 in/56 cm
15 mil DataMatrix	3 in./8 cm	33 in/84 cm
30 mil DataMatrix	3 in./8 cm	66 in/168 cm

Connections

The device supports connections for USB-C with DisplayPort, power serial and GPIO, x-coded Ethernet, and external lighting.



1	External Lighting
2	X-Coded Ethernet Port
3	USB-C (with DisplayPort)
4	Power Serial and GPIO

Power and IO Connector

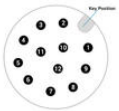


Table: Power and I/O Connector Pinout Diagram

Pin	Color	Description
1	Yellow	GPIO2
2	White/Yellow	TXD
3	Brown	RXD
4	White/Brown	GPIO4
5	Violet	GPIO5
6	White/Violet	COMMON_IN
7	Red	DC_IN
8	Black	GND
9	Green	COMMON_OUT
10	Orange	GPIO0
11	Blue	GPIO1
12	Grey	GPIO3
SHELL	Bare	SHIELD

Ethernet Connector



Table: Ethernet Connector Pinout Diagram

Pin	Description
1	TP1+
2	TP1-
3	TP2+
4	TP2-
5	TP4+
6	TP4-
7	TP3-
8	TP3+
SHELL	SHIELD

External Light Connector



Table: External Light Connector Pinout Diagram

Pin	Color	Description
1	Brown	DC_OUT / GPIO8
2	White	GPIO7
3	Blue	GND
4	Black	GPIO6
5	Grey	ANALOG_OUT
SHELL	Bare	SHIELD