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ZEBRA NS42 SMART CAMERA

NS42-WA20Q4-2C00W
WIDE ANGLE, 2.0 MP, ESSENTIAL MV, DL OCR, AND ANOMALY DETECTION, ETHERNET WITH POE, SERIAL, USB AND INDUSTRIAL PROTOCOLS, WHITE ILLUMINATION, NO FILTER - WORLDWIDE



- Catches errors early
- Easy to set up
- Reliable and long lasting
- Status indicators and operator feedback

PRODUCT DESCRIPTION

The Zebra NS42 Smart Vision Sensor is a compact yet powerful machine vision system featuring a 2.3 MP global-shutter CMOS sensor capable of capturing up to 60 fps. It's powered by a quad-core processor with 8 GB RAM to support demanding AI workloads. Users can choose between standard-range (30° × 19°) or wide-angle (46° × 29°) liquid-lens fields of view, with modular red or white LED illumination. PoE+ support simplifies cabling, and there's flexibility with 24 V DC or USB-C power. On-device I/O includes nine digital ports, RS-232, Ethernet/IP, PROFINET, Modbus TCP, and USB-C with DisplayPort Alt Mode. Ruggedised in a sealed aluminium IP65/67 housing and tested for shock and vibration, it's built for harsh factory environments.
Out of the box, the NS42 supports deep learning-based OCR (DL-OCR) and anomaly detection, with standard machine-vision tools via Aurora Focus. DL-OCR reads varied fonts, characters, and symbols without training, ideal for parcel labels and serial numbers. Anomaly detection performs automated defect and assembly checks using reference image comparison, crucial in electronics, automotive, and packaging quality control. Integrated 360° LEDs and an adjustable-volume beeper provide instant operator feedback, while the browser-based HMI delivers real-time diagnostics and performance metrics without needing a PC.
The system's licensable architecture means you can add new capabilities, like symbology decoding or advanced tools, as requirements evolve, making it ideal for scalable, traceability, and automated inspection workflows.

TECHNICAL DATA

Focus	Liquid lens
Interface out	Ethernet with POE, Serial, USB & Industrial Protocols
Javascript Support	Yes
Lighting	Red
Pixel Size	3 x 3 µm
Size	54.0 x 64.0 x 91.4 mm
Software performance	ESSENTIAL MV, DL OCR, AND ANOMALY DETECTION
Type of lens	Wide angle
Type of scanner	Fixed Scanner

Specifications

Recommended Services		
Zebra OneCare Select™; Zebra OneCare Essential™		
Decode Ranges (Typical Working Ranges)[2]		
NS42-SR—30° FOV Lens		
Symbology/Resolution	**Near**	**Far**
5 mil Code 128	3 in./8 cm	24 in./61 cm
10 mil Code 128	3 in./8 cm	49 in./124 cm
15 mil Code 128	3 in./8 cm	70 in./178 cm
20 mil Code 128	3 in./8 cm	92 in./234 cm
5 mil DataMatrix	3 in./8 cm	13 in./33 cm
10 mil DataMatrix	3 in./8 cm	28 in./71 cm
15 mil DataMatrix	3 in./8 cm	40 in./102 cm
30 mil DataMatrix	3 in./8 cm	78 in./198 cm
NS42-WA—46° FOV Lens		
Symbology/Resolution	**Near**	**Far**
5 mil Code 128	3 in./8 cm	14 in./36 cm
10 mil Code 128	3 in./8 cm	30 in./76 cm
15 mil Code 128	3 in./8 cm	42 in./107 cm
20 mil Code 128	3 in./8 cm	56 in./142 cm
5 mil DataMatrix	3 in./8 cm	8 in./20 cm
10 mil DataMatrix	3 in./8 cm	18 in./46 cm
15 mil DataMatrix	3 in./8 cm	27 in./69 cm
30 mil DataMatrix	3 in./8 cm	52 in./132 cm
Footnotes		
1. Refer to Product Reference Guide for complete list of symbologies. 2. Printing resolution, contrast, power source, illumination source, and ambient light dependent.		
Specifications subject to change without notice.		

Power and IO Connector

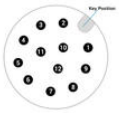


Table: Power and I/O Connector Pinout Diagram

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

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

Ethernet Connector

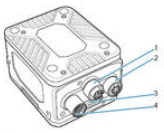


Table: Ethernet Connector Pinout Diagram

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

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

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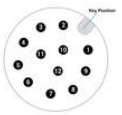


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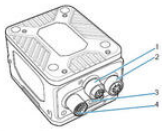


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