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# ZEBRA NS42 SMART CAMERA

NS42-SR20T4-2C00W
STANDARD RANGE, 2.0 MP, ESSENTIAL MV, DL OCR, AND ANOMALY DETECTION, ETHERNET WITH POE, SERIAL, USB AND INDUSTRIAL PROTOCOLS, RED 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 AND DL OCR |
| **Type of lens** | Standard |
| **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.<br>2. Printing resolution, contrast, power source, illumination source, and ambient light dependent. | | |
| Specifications subject to change without notice. | | |

### Power and IO Connector

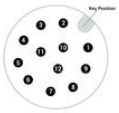



**Table: Power and I/O Connector Pinout Diagram**

| 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 |
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### Ethernet Connector

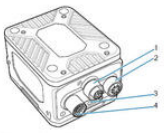



**Table: Ethernet Connector Pinout Diagram**

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| 1 | TP1+ |
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| 3 | TP2+ |
| 4 | TP2- |
| 5 | TP4+ |
| 6 | TP4- |
| 7 | TP3- |
| 8 | TP3+ |
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### 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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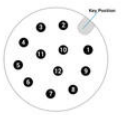



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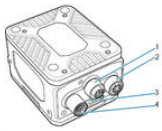



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