

# 1DC 96



One Sensor. Infinite Possibilities.

## Key Features

- **All-in-one design** – integrated sensor and controller eliminates external hardware, cables, and complexity
- **Zero recalibration** – sensor adapts automatically to any material (clear, opaque, metallic, nonwoven, mesh)
- **High resolution** – 0.0635 mm (0.0025 in) hardware resolution across the entire sensing width
- **Material-agnostic detection** – patented fiber-optic technology based on light scattering and spatial filtering
- **IP67 protection** – sealed aluminum housing withstands harsh industrial environments (IP68 available on request)
- **Native industrial Ethernet** – EtherNet/IP, PROFINET, EtherCAT, Modbus/TCP, CC-Link IE Field Basic
- **Vacuum compatible** – operates reliably in vacuum chamber applications

## Benefits

- **Stop paying for separate controllers** – all-in-one design eliminates external hardware and reduces total system cost
- **Eliminate integration complexity** – just power and one Ethernet cable replaces multi-component wiring
- **End unplanned downtime** from cable failures and connector issues between sensors and controllers
- **Stop losing hours** to sensor recalibration when switching between materials
- **Prevent hidden scrap** from temperature-related inaccuracies that plague ultrasonic sensors

## Specifications

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|                            |   |                            |                                  |
|----------------------------|---|----------------------------|----------------------------------|
| <b>Sensor Type</b>         | Fiber Optic (diffuse-reflective)                                    | <b>Sensing Range</b>       | 96 mm (3.78 in)                  |
| <b>Hardware Resolution</b> | 0.0635 mm (0.0025 in)   | <b>Firmware Resolution</b> | Up to 0.015875 mm                |
| <b>Repeatability</b>       | >99.9%  | <b>Linearity Error</b>     | <0.25%                           |
| <b>Response Time</b>       | 20 ms standard (1 ms special)                                       | <b>Camera Rate</b>         | 25 Hz - 1000 Hz                  |
| <b>Working Distance</b>    | 6-25 mm (0.25-1.0 in) optimal                                       | <b>Max Edges</b>           | 128                              |
| <b>Light Source</b>        | IR (880 nm), UV (385 nm), or White                                  | <b>Camera Type</b>         | CMOS line scan camera            |
| <b>Input Voltage</b>       | 20-30 VDC   | <b>Current Draw</b>        | 150-1500 mA                      |
| <b>Power Connector</b>     | M8 4-pin male A-Coded   | <b>Network Connector</b>   | M8 4-pin female A-Coded          |
| <b>Protocols</b>           | EtherNet/IP, PROFINET, EtherCAT, Modbus/TCP, CC-Link IE Field Basic |                            |                                  |
| <b>Operating Temp</b>      | -10°C to 65°C (14°F to 150°F)                                       | <b>Protection Class</b>    | IP67 (IP68 available on request) |
| <b>Housing Material</b>    | Aluminum alloy (powder coated)                                      | <b>Vacuum Compatible</b>   | Yes                              |
| <b>Controller Required</b> | No (built-in)   | <b>Interface</b>           | Industrial Ethernet / APP / PLC  |

## Applications

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- Web guiding (edge, center, and contrast guiding)
- Edge position measurement
- Multiple edge position measurement (up to 128 edges)
- Center position measurement
- Line/contrast position measurement
- Width measurement and coating width measurement
- Multiple strip width measurement
- Thread/string counting
- Flag detection and splice detection
- Tear detection and simple inspection

## Compatibility

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### SUPPORTED LINE SPEEDS

1000+ fpm

### SUPPORTED MATERIAL TYPES

Nonwoven, Porous/Perforated

### SUPPORTED WEB WIDTHS

Narrow (<12"), Medium (12"-48")

## Available Configurations

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| Part Number | Configuration   |
|-------------|---|
| 7-020005    | Mounting Bracket for 1" or 25 mm Extrusion for WPS, ODC and 1DC Sensors   |
| 7-020006    | Mounting Bracket for 1.5" or 40 mm Extrusion for WPS, ODC and 1DC Sensors |
| 8-000010    | 1DC 96-IR EP  |
| 8-010010    | 1DC 96-IR PR  |
| 8-020010    | 1DC 96-IR MB  |
| 8-060010    | 1DC 96-IR EC  |

## Supporting Documentation

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### Manuals (3)

- 1DC Series: Product Data Sheet
- Register Map for 1DC Series Roll-2-Roll® Sensor (v 4.3a+)
- Sensor Installation Recommendations: Inspection Applications

### 2D Drawings (3)

- 1DC 96-xx QD
- New Mounting Brackets for WPS, ODC and 1DC sensors - 1.5 in or 40 mm extrusion
- New Mounting Brackets for WPS, ODC and 1DC sensors - 1in or 25 mm extrusion

### 3D Models (3)

- 1DC 96
- Mounting Bracket for 1.5in or 40mm Extrusion for WPS, ODC and 1DC Sensors
- Mounting Bracket for 1in or 25mm Extrusion for WPS, ODC and 1DC Sensors

### Support Files (2)

- EtherNet/IP EDS File for Roll-2-Roll® Communication Module
- Rockwell/AB Add-on Instructions for 1DC Series of Roll-2-Roll® Sensor



Scan for datasheets, 3D models & full documentation

<https://r2r.tech/products/sensors/1dc-96>

### Ready to Get Started?

Contact our experts to discuss how this product fits your application.

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