Roll-2-Roll Technologies

PRODUCT BROCHURE

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

Sensor Type	Fiber-optic (diffuse-reflective)	**Sensing Range**	96 mm (3.78 in)
Hardware Resolution	0.0635 mm (0.0025 in)	**Firmware Resolution**	Up to 0.015875 mm
Repeatability	±0.127 mm (±0.005 in)	**Linearity Error**	<0.25%
Response Time	20 ms standard (1 ms with special firmware)	**Camera Rate**	25–1000 Hz (maximum with special firmware)
Working Distance	15–25 mm (0.6–1.0 in) standard; 50–100 mm special	**Max Edges**	128
Light Source	IR (880 nm), UV (385 nm), or White	**Camera Type**	CMOS line scan camera
Input Voltage	20-30 VDC	**Current Draw**	150-1500 mA
Power Connector	M8 4-pin male A-Coded	**Network Connector**	M8 4-pin female A-Coded
Protocols	EtherNet/IP, PROFINET, EtherCAT, Modbus/TCP, CC-Link IE Field Basic		
Operating Temp	-10°C to 65°C (14°F to 150°F)	**Protection Class**	IP67 (IP68 available on request)
Housing Material	Aluminum alloy (powder coated)	**Vacuum Compatible**	Yes
Controller Required	No (built-in)	**Interface**	Industrial Ethernet / APP / PLC

Applications

- 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

SUPPORTED LINE SPEEDS

1000+ fpm

SUPPORTED MATERIAL TYPES

Nonwoven, Porous/Perforated

SUPPORTED WEB WIDTHS

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

Available Configurations

Part Number	Configuration
7-020005	Mounting Bracket for 1" or 25 mm Extrusion for WPS, ODC Family and 1DC Series
7-020006	Mounting Bracket for 1.5" or 40 mm Extrusion for WPS, ODC Family and 1DC Series
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

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 Family and 1DC Series - 1.5 in or 40 mm extrusion
- New Mounting Brackets for WPS, ODC Family and 1DC Series - 1in or 25 mm extrusion

3D Models (3)

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

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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