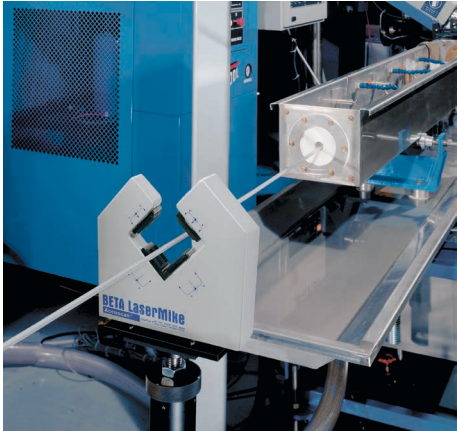


## ACCUSCAN SERIES



Dual- and single-axis diameter & ovality gauges for quality- and cost-driven manufacturers

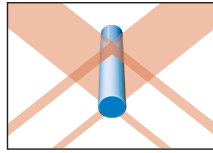
- ▶ Instantly detect changes in product with fast, comprehensive non-contact measurements
- ▶ Optimize process control through increased measurement accuracy and repeatability
- ▶ Produce higher quality products in less time and with less waste
- ▶ Get highly flexible communications for easy integration with your processes
- ▶ Realize the lowest total cost of ownership

# Ultra-Fast, Dual-Axis Laser Diameter Gauges for Superior In-Line Process Control

## AccuScan 5000 Series

### Highest Single-Scan Accuracy in the Industry

The AccuScan 5000 Series gauges set the standard in diameter and ovality measurement. The new family of ultra-fast AccuScan 5000 gauges performs **high-speed measurements at 2400 scans per second per axis (totaling 4800 measurements per second)** and provides the **highest single-scan accuracy in the industry**. The improvements in the single-scan calibration algorithm mean that each scan is highly accurate, providing the most reliable readings in applications such as high-speed tolerance checking of flaws, the monitoring of complex product shapes/profiles, and other challenging measurement requirements. With a range of models covering diameters up to 80 mm (3.15 in.), the AccuScan 5000 Series brings precision, quality, and productivity to your process.



## AccuScan Model 3175

The AccuScan 3175 offers similar features as the AccuScan 5000 Series but uses camera CCD technology with powerful signal processors for accurate, reliable diameter measurements. This model expands the measurement range to 175 mm (6.89 in.).



## Communications & Options

Each AccuScan 5000 series gauge has built-in signal processing and intelligence and supports the following communication protocols:

RS-232

Profibus

Profinet

DeviceNet

EtherNet/IP

Ethernet TCP/IP

CANopen

Analog/Digital

## Features & Benefits:

- ▶ High-Speed Tolerance Checking option permits the early, accurate, and dependable detection of product lumps and necks to eliminate costly product waste
- ▶ STAC (stranded, twisted, armoured, and corrugated) logic software option provides accurate maximum/minimum or enveloped readings on shaped and enveloped products at a higher rate, allowing for faster process control of complex product constructions
- ▶ Integrated air purge system keeps windows clean from dust and debris for maximum uptime and reduced maintenance
- ▶ Supports a wide range of communications protocols\*, including RS-232, EtherNet/IP, Ethernet TCP/IP, DeviceNet, Profinet, Profibus, CANopen, Analog, and Digital
- ▶ Optional ultra-bright display and operator interface to easily configure and view measurement data
- ▶ Rugged construction, sealed to IP 65 (NEMA 4) standards provides protection in the harshest environments for long service life
- ▶ Applicable as a stand-alone gauge or part of a full-line solution

\*AccuScan 3175 does not support Ethernet, EtherNet/IP, TCP/IP, and Profinet.

## Applications

The AccuScan diameter and ovality gauges have a long history of being a proven performer in a wide range of industrial applications\*, including:

- ▶ Cord
- ▶ Plastic and Rubber Hose
- ▶ Plastic Pipe
- ▶ Plastic Tube – including medical, automotive, heat shrink, irrigation, and other products
- ▶ Rods
- ▶ Wire and Cable – bare, jacketed, and coated
- ▶ And other extruded or drawn cylindrical, flat, or unique profile products

\*Opaque, semi- and full-transparent products supported by AccuScan 5000 series of gauges.



## AccuScan 5000 Series and Model 3175 Specifications

	AccuScan 5012	AccuScan 5025	AccuScan 5040	AccuScan 5080	AccuScan 3175*
<b>Performance</b>					
<b>OD range</b>	0.1 – 12 mm (0.004 – 0.47 in.)	0.2 – 25 mm (0.008 – 1.00 in.)	0.2 – 40 mm (0.008 – 1.50 in.)	1.27 – 80 mm (0.050 – 3.15 in.)	10 – 175 mm (0.39 – 6.89 in.)
<b>Gate size</b>	16 mm (0.63 in.)	52 mm (2.05 in.)	52 mm (2.05 in.)	108 mm (4.25 in.)	190 mm (7.48 in.)
<b>Accuracy</b>	±0.0005 mm <sup>1</sup> (±0.000020 in.)	±0.001 mm <sup>1</sup> (±0.000040 in.)	±0.001 mm <sup>1</sup> (±0.000040 in.)	±0.002 mm <sup>2</sup> (±0.000080 in.)	±0.02 mm <sup>3</sup> (±0.00080 in.)
<b>Repeatability (Single Scan)</b>	±1μ±0.025%	±2μ±0.025%	±2μ±0.025%	±5μ±0.025%	N/A
<b>Resolution</b>	0.00001 mm (0.0000004 in.)				0.001 mm (0.00004 in.)
<b>Scan rate</b>	2400 scans/sec/axis				500 scans/sec/axis
<b>Communications</b>					
<b>Standard</b>	RS-232				
<b>Optional<sup>4</sup></b>	DeviceNet, Profinet, Profibus, CANopen, EtherNet/IP, Ethernet TCP/IP, and dual Analog-Digital output plus dry relay contacts				
<b>Environmental and Physical Data</b>					
<b>Power</b>	24 VDC, 6 W, 0.9 A	24 VDC, 9 W, 1 A		24 VDC, 10 W, 1 A	115/230 VAC, 55 W
<b>Temperature</b>	5-45° C (41-113° F)				5-40° C (41-104° F)
<b>Protection rating</b>	IP65 (NEMA 4)				
<b>Weight</b>	3 Kg (6.61 lb)	10 Kg (22 lb)	10 Kg (22 lb)	31 Kg (67 lb)	50 Kg (110 lb)
<b>Dimensions (L x H x W)</b>	255 x 174 x 40 mm (10.0 x 6.85 x 1.57 in.)	380 x 360 x 80 mm (15 x 14.2 x 3.1 in.)	380 x 360 x 80 mm (15 x 14.2 x 3.1 in.)	660 x 634 x 107 mm (26 x 25 x 4.2 in.)	749 x 1365 x 187 mm (29.5 x 53.7 x 7.4 in.) <sup>5</sup>

<sup>1</sup>±0.02% of product size. <sup>2</sup>±0.01% of product size. <sup>3</sup>±0.1% of product size (at center gate).

<sup>4</sup>Profinet, EtherNet/IP and Ethernet TCP/IP not included on AccuScan 3175.

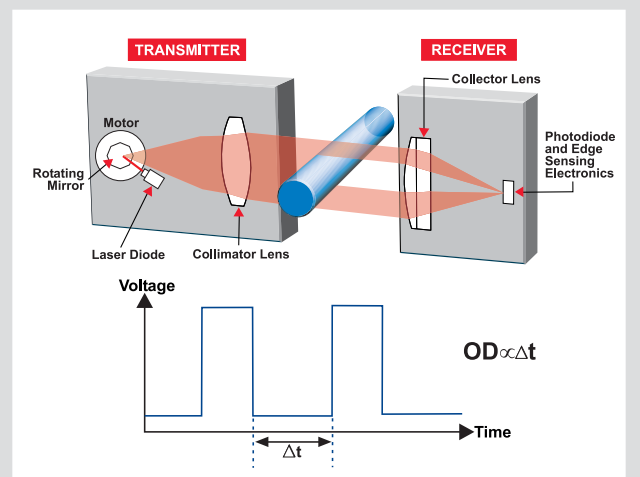
<sup>5</sup>Height from product centerline. Adjustable stand is part of assembly.

\*AccuScan 3175 uses camera CCD technology. AccuScan 5000 Series gauges use laser scanning technology.

### Laser Scanning Measurement Principle

In 1972, the founders of Beta LaserMike introduced the world's first laser scanning micrometer (the "LaserMike"). AccuScan gauges employ this laser scanning measurement principle, which uses a low-power helium-neon laser that is scanned at high speed through a measurement window and across the product.

When the laser first scans across to the receiver, the light hits the photocell and the voltage rises. The voltage drops when the light is blocked by the product and rises again when the light reaches the photocell. The change in time ( $\Delta t$ ) that the light is blocked by the product is proportional to the product's outer diameter.

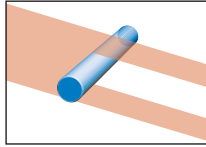




# Versatile, Single-Axis Laser Diameter Gauge for Cost-Effective Operation in Every Application

## AccuScan 4012

The AccuScan 4012 gauge provides single-axis diameter measurement capabilities in a high-performance package.



The AccuScan 4012 gauge offers manufacturers a compact, highly accurate, and robust solution for measuring product diameters up to 12 mm (0.47 in.). The AccuScan 4012 gauge integrates Digital Signal Processing and intelligence for outstanding measurement repeatability and it supports a range of communication protocols. Its durable, low-maintenance design enables the gauge to reliably operate in a wide variety of demanding industrial applications. With the AccuScan 4012, you get powerful features and big performance in a small, cost-efficient package.



Flexible communication integration with a variety of protocols. AccuScan 4012 shown with serial (DB9) connector.

Flexible communication integration with a variety of protocols. AccuScan 4012 shown with serial (DB9) connector.

## AccuScan 4012 Specifications

Performance	
OD range	0.1 – 12 mm (0.004 – 0.47 in.)
Gate size	16 mm (0.63 in.)
Accuracy	±0.0005 mm (±0.000020 in.) <sup>1</sup>
Repeatability (Single Scan)	±1µ±.025%
Resolution	0.00001 mm (0.0000004 in.)
Scan rate	1200 scans/sec/axis
Communications	
Standard	RS-232, DeviceNet, Profinet, EtherNet/IP, Ethernet TCP/IP
Optional <sup>2</sup>	Profibus, Analog/Digital
Environmental and Physical Data	
Power	24 VDC, 6 W, 0.9 A
Temperature	5-45° C (41-113° F)
Protection rating	IP65 (NEMA 4)
Weight	1.54 kg (3.4 lb)
Dimensions (L x W x H)	235 x 109 x 40 mm (9.2 x 4.3 x 1.6 in.)



## Features & Benefits:

- ▶ High scan rate of 1200 scans/second/axis for enhanced process monitoring
- ▶ High-accuracy, low-drift measurements regardless of where the product is positioned within the measuring gate
- ▶ Specially engineered optics with unique calibration technique provide the highest achievable accuracy
- ▶ Small footprint to install the gauge at a wider range of locations on the production line
- ▶ Flexible communication integration with RS-232, EtherNet/IP, Ethernet TCP/IP, DeviceNet, Profibus, Profinet, and CanOpen\*
- ▶ Optional ultra-bright display and operator interface to easily configure and view measurement data
- ▶ Monitor gauge operation and performance such as gauge status, on-board communication options, RS-232, and Ethernet data transmissions with color-coded LED status indicators
- ▶ Rugged, robust IP65 rated housing keeps out moisture and dirt
- ▶ Applicable as a stand-alone gauge or part of a full-line solution



Optional ultra-bright display to easily view measurement data

\*See specifications for more details on standard and optional communication protocols.

<sup>1</sup>±0.02% of product size.

<sup>2</sup>The AccuScan 4012 can be equipped with an optional high-density, 15-pin connector for Profibus and Analog/Digital outputs. A Y-adaptor can be used, splitting the 15-pin output into two DB-9 connector outputs.

# Economical and User-Friendly Off-Line Part Measurement System

## AccuScan Bench-top

The AccuScan bench-top measurement system enables you to quickly and easily setup an off-line part measurement system to check samples and track, manage, and analyze critical product data. This simple low-cost solution is ideal for use in a lab or at a production floor QC station.

### Single-Axis and Dual-Axis Diameter & Ovality Measurement

The AccuScan bench-top measurement system can be equipped with the compact and highly accurate AccuScan 4012 single-axis diameter and ovality gauge. AccuScan gauges offer high-speed and submicron accurate measurements on opaque and transparent products, as well as easy integration techniques with flexible communication protocols. All gauges can be equipped with an optional ultra-bright display. Or, you can use the powerful bench-top measurement system with the Beta LaserMike AccuNet software for total control of the off-line part/sample inspection process.

Optional customized bases and part fixtures are available to ensure rapid and accurate mounting of the part. You can easily setup and connect gauges directly to an optional PC either through USB or Ethernet.

### Four-Axis Measurement

The AccuScan Bench-top measurement system is also available in a four-axis configuration for multi-axis, off-line part measurement applications. As compared to the dual-axis system, the four-axis system uses two AccuScan gauges and checks parts in two locations with axes 45° apart. The AccuNet software provides the ovality at each location, as well as the overall ovality of the part.



AccuScan 4012 shown with wire sample in V-block for off-line sample/part inspection



AccuScan 4012 shown with tube sample in V-block



AccuNet software is user friendly with simple run menus and color-coded displays for intuitive access to functions and data display. Store multiple part recipes, generate trend charts, perform SPC functions, and log critical product measurement data.

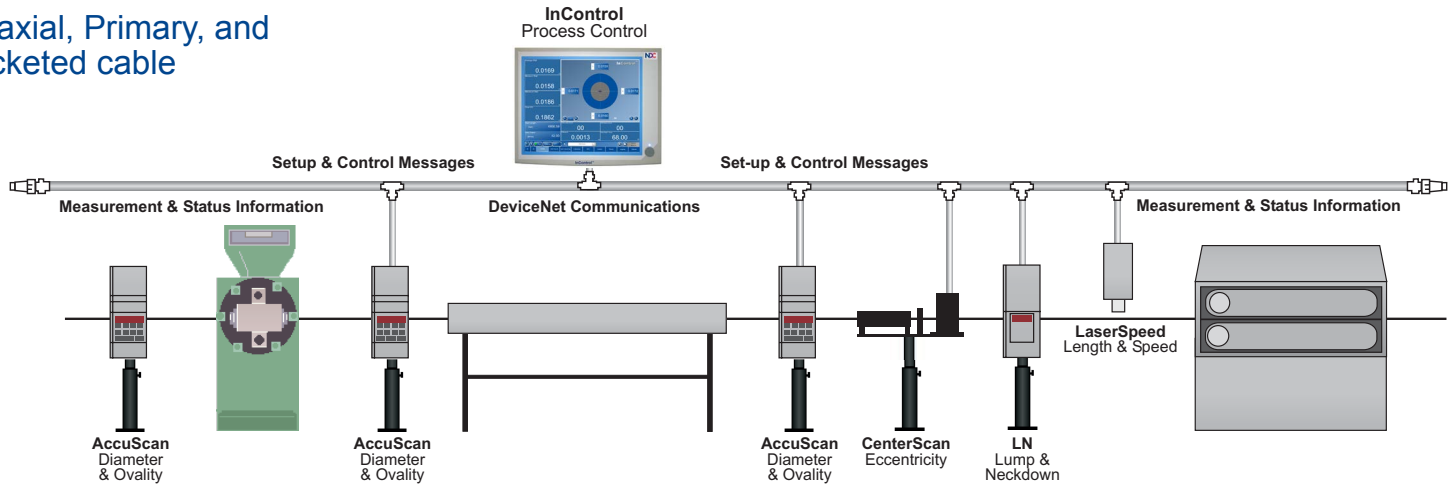


4-axis measurement system with two AccuScan 5012 gauges

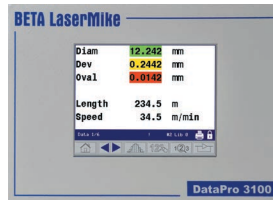
# System Solutions

AccuScan gauges can be integrated with Beta LaserMike DataPro or InControl process controllers into your production line for a complete diameter and ovality measurement system. In addition to diameter measurement, a complete portfolio of measurement technologies are available to give you more control over your entire production process.

## Coaxial, Primary, and Jacketed cable



InControl

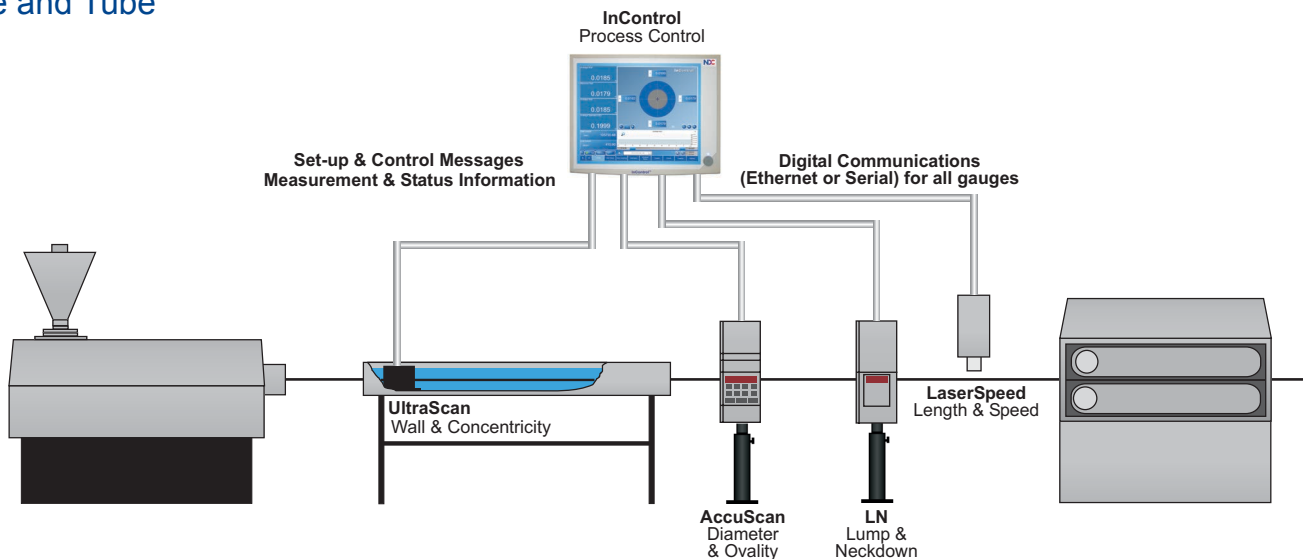


DataPro 3100



DataPro 1000

## Pipe and Tube

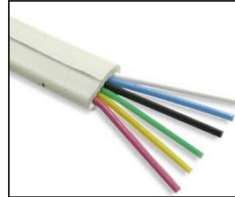


# Measure Flat, Sector, and Special-Shaped Cables

## ActiveScan

The Beta LaserMike ActiveScan system precisely measures the height and width of flat, sector, and special-shaped cables. This motion-based gauge measures product diameters up to 40 mm (1.50 in) with  $\pm 0.001$  mm ( $\pm 0.000040$  in.) accuracy. System includes AccuScan 5025/5040 dual-axis laser diameter gauges, pneumatic motion system, and proprietary STAC Logic software. Contact your local NDC representative for more details.

*ActiveScan provides accurate, non-contact measurement of unique cable profiles.*



## Accessories and Options

AccuScan gauges can be equipped with various accessories and options to meet your specific application needs.

### Accessories

- ▶ **Height stand** (normal upright or at 45 degrees)
- ▶ **Light stack**
- ▶ **Roller guides**
- ▶ **Calibration set**
- ▶ **Air cleaner filtering unit**
- ▶ **WireScan Insert:** Keep contaminants from harsh wire drawing processes out of your AccuScan 5012 gauge for highly accurate, dependable measurements. Four wire measurement sizes available:
  - 3 mm** (0.12 in.): SA1530-7793-1/A
  - 4.5 mm** (0.18 in.): SA1530-7793-2/A
  - 7.5 mm** (0.29 in.): SA1530-7793-3/A
  - 10 mm** (0.39 in.): SA1530-7793-4/A



Height Stand



Light Stack



Guide Rollers



Calibration Set



WireScan Insert

### Software Options

- ▶ Glass logic for measuring transparent/translucent products (not available with the AccuScan 3175)
- ▶ Single-scan flaw detection for Lump and Neckdowns
- ▶ In-head Fast Fourier Transform (FFT) analysis of the diameter measurement
- ▶ Fast analog output for further analysis or connection to a Digital Panel Meter
- ▶ STAC logic for measuring stranded, twisted, armoured, or corrugated products
- ▶ AccuNet software for complete off-line part/sample inspection



## Precision Measurement & Control Solutions

The Beta LaserMike line of measurement and control solutions from NDC Technologies is designed to increase productivity, improve product quality, and reduce manufacturing costs. These solutions provide in-process dimensional monitoring, control, and sample/part inspection of products such as wire and cable, fiber optics, metals, rubber and plastic, flat rolled goods, tube and pipe, and other manufactured goods. Every system is backed by NDC's world-class service and support organization. With offices around the globe, we're committed to serving your unique measurement application needs.



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