

Differential Speed Measurement System

On-line measurement of differential speed at two different locations

Beta LaserMike's Differential Speed Measurement System offers you an easy-to-use solution for applications requiring the measurement and comparison of two different line speeds.

By adding the LaserSpeed Length Differential Indicator (LDI) and two LaserSpeed 4000-1 Gauges, you can monitor line speed at any two locations on your manufacturing line. For example, you can:

- Measure and monitor product stretch
- Monitor speed of two different parts of the product during lamination
- Interface with a PLC to control differential speed
- Connect to a light stack or alarm to notify the operator when differential speed exceeds your tolerance(s)

Features

- Differential speed resolution of 0.01%
- Bright, easy-to-read LED display
- Three relay outputs (Good Measurement, Under Tolerance, and Over Tolerance) for alarm indications
- RS-232 output of differential speed measurement value for input to a PLC or an SPC analysis program
- LaserTrak software for diagnostics and monitoring individual speeds

LaserSpeed

Non-Contact Measurement of Differential Speed



Benefits

- Monitor product stretch to ensure proper thickness and to prevent breaks
- Ensure two products being joined together during lamination are moving at proper relative speeds
- Simplify line operation through user-friendly interface
- Document product quality by importing differential speed data into statistical analysis package
- Easy system integration through flexible I/O options



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Length Differential Indicator (LDI) Specifications

Power Requirements	100-240 V AC, 1.2 A maximum
Operating Temperature	0-40°C (32-140°F) <80% humidity, non-condensing
Dimensions	203 x 142 x 254 mm (8.0 x 5.6 x 10.0 in.)
Weight	2.9 kg (6.4 lbs.)
Digital Outputs	Three digital outputs for alarm status information
Serial Data Out	RS-232 Serial Data Out sends both alarm status and differential speed measurement information

LaserSpeed 4000-1 Gauge Specifications

Accuracy	±0.05% of reading
Repeatability	±0.02%
Measurement Rate	>20000/s
User Isolated Voltage	Provided by LDI
Gauge Size	203 X 159 X 81 mm (8.0 X 6.3 X 3.2 in.)
Gauge Weight	2.55 kg (5.6 lbs)
Temperature Range	5 to 40°C (41 to 104°F)
Relative Humidity	Non-condensing
Water Cooling	1.0 to 3.8 l/min, Typical 1.5 l/min (0.4 gpm)
Degree of Protection	IP67

Other specifications are subject to gauge selection

Gauge Specifications by Model

LS4000-101

Speed Range	0.2-1700 m/min (0.7-5500 ft/min)
Standoff Distance	100 mm (4 in.)
Measurement Depth of Field	15 mm (0.6 in.)

LS4000-103

Speed Range	0.4-4000 m/min (1.3-13100 ft/min)
Standoff Distance	300 mm (12 in.)
Measurement Depth of Field	35 mm (1.4 in.)

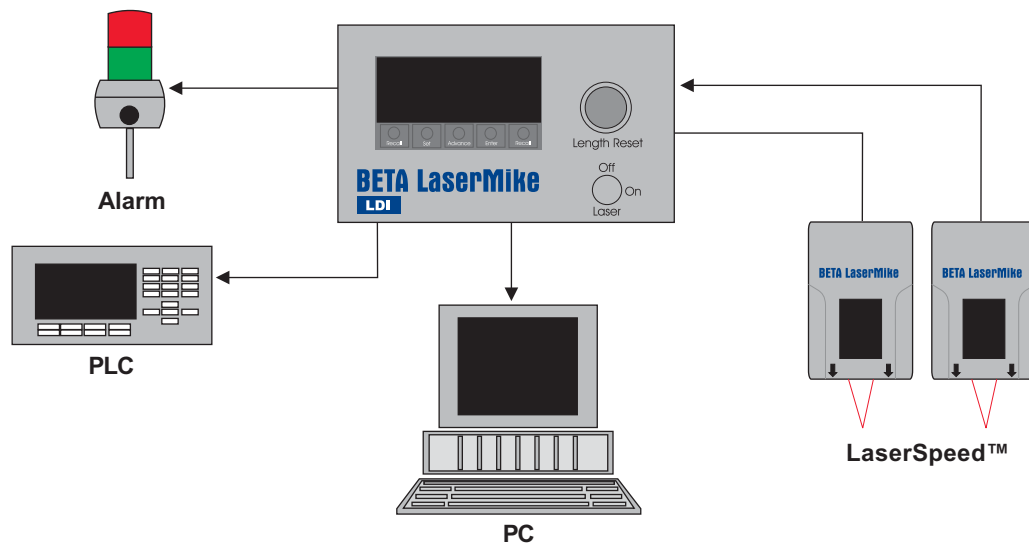
LS4000-106

Speed Range	0.8-8000 m/min (2.6-26200 ft/min)
Standoff Distance	600 mm (24 in.)
Measurement Depth of Field	50 mm (2.0 in.)

LS4000-110

Speed Range	1.0-12000 m/min (3.2-39400 ft/min)
Standoff Distance	1000 mm (39.4 in.)
Measurement Depth of Field	75 mm (3.0 in.)

System Diagram



BETA LaserMike

This unit is a class IIIB laser product and complies with 21 CFR 1040.10 and 1040.11

The following safety features required to comply with the Bureau of Radiological Health Class IIIB laser requirements are included:

- Key-operated power switch on optional controller
- Laser indicator light on supply and laser
- Delayed laser startup-laser indicator light on prior to laser radiation
- Laser beam blocking device
- Interlock capability for remote shut-off



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