

## LS8000 Series

*Designed for steel and non-ferrous metal manufacturing. Provides high accuracy at a revolutionary price.*

A breakthrough in electro-optics design enables Beta LaserMike's LaserSpeed® 8000 Series gauge to produce highly accurate, non-contact speed and length measurements at a surprisingly low cost. To accomplish this, the LS8000 Series gauges use autocorrelation, the most advanced digital signal processing algorithm, coupled with new single-chip integrated circuit technology.

The LS8000 Series gauge is an industrial smart sensor that can be connected directly to a PLC or control computer. Speed, length, quality factor and gauge status information can be obtained via quadrature pulses, analog signals and serial communications. With accuracy better than  $\pm 0.05\%$ , the LS8000 is the ideal gauge for replacing contact tachometers which are prone to measurement errors caused by slippage, dirt build-up, and day-to-day wear problems in the metal manufacturing industry.

### Benefits

- High accuracy and repeatability
- Rugged, sealed industrial packaging for use in industrial environments
- Non-contact length and speed measurement
  - No slippage
  - Non-marking
  - Not affected by material surface or color
- Permanently calibrated
- Opto-isolated programmable pulse outputs
- Analog output for speed or status
- Compact, rugged industrial sensor operates on +24VDC

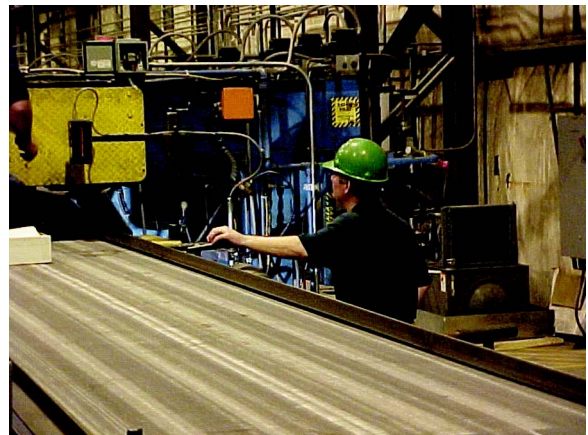
**LaserSpeed®**  
**Non-Contact Speed  
& Length Gauges**



### Range of Applications

The LS8000 is well suited for a range of metal applications, including, but not limited to:

- Steel Slabs
- Cold Steel Strip
- Steel Bar Length
- Plate Length
- Tube Length
- Bar Length
- Process Lines
- Painting Lines
- Galvanizing Lines



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**BETA LaserMike**

## Specifications

LS8000	-101 / -201	-103 / -203	-106 / -206	-110 / -210	-215
<b>Standoff Distance</b>	100 mm (4 in.)	300 mm (12 in.)	600 mm (24 in.)	1000 mm (39.4 in.)	1500 mm (59.1 in.)
<b>Speed Range</b>	0.2 to 1700 m/min (0.7 to 5500 ft/min)	0.4 to 4000 m/min (1.3 to 13100 ft/min)	0.8 to 8000 m/min (2.6 to 26200 ft/min)	1.0 to 12000 m/min (3.2 to 39400 ft/min)	2.0 to 19000 m/min (6.5 to 62400 ft/min)
<b>Measurement Depth of Field</b>	15 mm (0.6 in.)	35 mm (1.4 in.)	50 mm (2 in.)	75 mm (3.0 in.)	75 mm (3.0 in.)

### LS8000-1

<b>Accuracy</b>	<+/-0.05% of reading
<b>Repeatability</b>	+/-0.02%
<b>Measurement Rate</b>	>20000/s
<b>Acceleration Rate</b>	>500 m/s <sup>2</sup>
<b>Starting/ Ending Length Correction</b>	- No
<b>Serial I/O</b>	- RS-232
Data Available	- Speed, Length - Quality Factor, Status
Baud Rate	- 115K, 230K - 19.2K, 38.4K, 57.6K
<b>Status via Serial I/O</b>	- Sensor at Temperature - Laser On - Shutter Open - Valid Measurements
<b>Quadrature Pulse</b>	- Opto isolated
Output 1	- Scaleable pulse amplitude (5-24V) - Fixed at 1000 pulses/unit - 250 KHz max pulse rate
Output 2	- Scaleable pulse amplitude (5-24V) - Selectable pulses/unit - 250 KHz max pulse rate
<b>Index pulse output</b>	- Yes
<b>Gauge Power</b>	- 24VDC (+/-4 VDC) @ 1 Amp

### LS8000-2

<b>Accuracy</b>	<+/-0.05% of reading
<b>Repeatability</b>	+/-0.02%
<b>Measurement Rate</b>	>20000/s
<b>Acceleration Rate</b>	>500 m/s <sup>2</sup>
<b>Starting/ Ending Length Correction</b>	- Yes
<b>Serial I/O</b>	- RS-232 / RS-422
Data Available	- Speed, Length - Quality Factor, Status
Baud Rate	- 115K, 230K - 19.2K, 38.4K, 57.6K
<b>Status via Serial I/O</b>	- Laser at Temperature - Laser Interlock - Shutter Position - Valid Measurements - Material Present - System Ready
<b>Quadrature Pulse</b>	- Opto isolated
Output 1	- Scaleable pulse amplitude (5-24V) - Selectable pulses/unit - 250 KHz max pulse rate
Output 2	- RS-422 Drivers - Selectable pulses/unit - 5 MHz max pulse rate
<b>Index pulse output</b>	- No
<b>Gauge Power</b>	- 24VDC (+/-4 VDC) @ 1.5 Amp

## Common Specifications

### All LS8000 Gauges

<b>User Isolated Voltage</b>	5 to 24 VDC (300mA)
<b>Gauge Size</b>	203 X 159 X 81 mm (8.0 X 6.3 X 3.2 in.)
<b>Gauge Weight</b>	2.55 kg (5.6 lbs)
<b>Temperature Range</b>	5 to 40°C (41 to 104°F)
<b>Relative Humidity</b>	Non-condensing
<b>Water Cooling</b>	1.0 to 3.8 l/min, Typical 1.5 l/min (0.4 gpm)
<b>Degree of Protection</b>	IP67
<b>Output Rate</b>	2 to 32 ms in 2 ms increments
<b>Units of measure</b>	Selectable
Speed	m/min, m/s, ft/min, ft/s
Length	m, ft

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

Specifications are subject to change without notice.

### Optional Accessories (for all LS8000 gauges)

- **Analog Converter:** Converts 0 to 2VDC speed output to; 0 to 10VDC, 0 to 5VDC, +/- 10VDC, +/-5VDC, 0 to 20 mA, 4 to 20 mA
- **Hot Object Filter:** For products over 500°C
- **Air Wipe:** Helps keep window clean in dirty environments
- **Quick Change Window:** For easy cleaning and maintenance of the window
- **Sensor Cable:** 3m, 10m, 20m, 30m, 50m lengths
- **Terminal Block:** Breakout box for sensor cable

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