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® 9000 Series gauge to produce highly accurate, non-contact speed and length measurements, including zero speed and automatic direction detection, at a surprisingly low cost. To accomplish this, the LS9000 Series gauges use an enhanced version of autocorrelation, coupled with an Acusto-Optical modulator.

The LS9000 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, serial communications and ethernet. With accuracy better than ±0.05%, the LS9000 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
- Measures zero speed
- Automatic direction detection
- Permanently calibrated
- Opto-isolated programmable pulse outputs
- Analog output for speed or status
- Compact, rugged industrial sensor operates on +24VDC
Specifications

<table>
<thead>
<tr>
<th>LS9000</th>
<th>-303</th>
<th>-306</th>
<th>-310</th>
<th>-315</th>
<th>-320</th>
<th>-325</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standoff Distance</td>
<td>300 mm (12 in.)</td>
<td>600 mm (24 in.)</td>
<td>1000 mm (39.4 in.)</td>
<td>1500 mm (59.1 in.)</td>
<td>2000 mm (78.1 in.)</td>
<td>2500 mm (98.4 in.)</td>
</tr>
<tr>
<td>Speed Range</td>
<td>0...+/-4000 m/min (0...+/-13100 ft/min)</td>
<td>0...+/-8000 m/min (0...+/-26200 ft/min)</td>
<td>0...+/-12000 m/min (0...+/-39400 ft/min)</td>
<td>0...+/-19000 m/min (0...+/-62400 ft/min)</td>
<td>0...+/-20000 m/min (0...+/-65600 ft/min)</td>
<td>0...+/-20000 m/min (0...+/-65600 ft/min)</td>
</tr>
<tr>
<td>Measurement Depth of Field</td>
<td>35 mm (1.4 in.)</td>
<td>50 mm (2.0 in.)</td>
<td>100 mm (4.0 in.)</td>
<td>200 mm (8.0 in.)</td>
<td>200 mm (8.0 in.)</td>
<td>200 mm (8.0 in.)</td>
</tr>
</tbody>
</table>

### LS9000 General Specifications

**Accuracy**
- Depth of Field <75mm: +/-0.05% of reading
- Depth of Field >75mm: +/-0.1% of reading

**Repeatability**
- +/-0.02%

**Measurement Rate**
- >100,000/s

**Acceleration Rate**
- >500 m/s²

**Starting/Ending**
- Yes

**Serial I/O**
- Data Available: RS-232 / RS-422
- Speed, Length
- Quality Factor, Status

**Baud Rate**
- 115K, 230K
- 19.2K, 38.4K, 57.6K

**Ethernet -Optional**
- 10/100, UDP,TCP
- Speed, Length
- Quality Factor, Status

**Status via Serial I/O**
- Laser at Temperature
- Laser Interlock
- Shutter Position
- Valid Measurements
- Material Present
- System Ready

**Optional Ethernet**
- - Opto isolated
- - Scaleable pulse amplitude (5-24V)
- - Selectable pulses/unit
- - 250 KHz max pulse rate

**Output 1**
- RS-422 Drivers
- Selectable pulses/unit
- 5 MHz max pulse rate

**Output 2**
- RS-422 Drivers
- Selectable pulses/unit
- 5 MHz max pulse rate

**Gauge Power**
- 24VDC (+/-4 VDC) @ 2.0 Amp

**Gauge Temperature**
- 5 to 45°C (41 to 113°F)

Specifications subject to change without notice.

### LS9000E

**Gauge Size**
- -303, -306, -310: 203 X 159 X 95.2 mm (8.0 X 6.3 X 3.75 in.)
- -315, -320, -325: 228.6 X 159 X 95.2 mm (9 X 6.3 X 3.75 in.)

**Gauge Weight**
- -303, -306, -310: 3.4 kg (7.5 lbs)
- -315, -320, -325: 3.7 kg (8.3 lbs)

**Water Cooling**
- 1.0 to 3.8 l/min, Typical 1.5 l/min (0.4 gpm)

**Relative Humidity**
- Non-condensing

**Degree of Protection**
- IP67

### LS9000X

**Gauge Size**
- -303, -306, -310: 508 X 327 X 186 mm (20 X12.88 X 7.32 in.)
- -315, -320, -325: 508 X 327 X 186 mm (20 X12.88 X 7.32 in.)

**Gauge Weight**
- -303, -306, -310: 24.9 kg (55 lbs)
- -315, -320, -325: 24.9 kg (55 lbs)

**Environment Temp.**
- -10 to 200ºC (14 to 392ºF)

**Water Cooling**
- 1.0 to 3.8 l/min (0.26 – 1gpm)

**Compressed Air**
- Air wipe: Instrument grade
- Air Purge: 6.2 – 8.3 Bar, 1200 l/min (90 -120psi, 45 scfm)

**Relative Humidity**
- Non-condensing

**Degree of Protection**
- IP67

### LS9000E

**Gauge Size**
- -303, -306, -310: 362 X 229 X 154 mm (14.25 X 9 X 6 in.)
- -315, -320, -325: 362 X 229 X 154 mm (14.25 X 9 X 6 in.)

**Gauge Weight**
- -303, -306, -310: 18 kg (40 lbs)
- -315, -320, -325: 18 kg (40 lbs)

**Environment Temp.**
- -10 to 150ºC (14 to 302ºF)

**Water Cooling**
- 1.0 to 3.8 l/min (0.26 – 1gpm)

**Compressed Air**
- - Air wipe: Instrument grade
- - Air Purge: 6.2 – 8.3 Bar, 1200 l/min (90 -120psi, 45 scfm)

**Relative Humidity**
- Non-condensing

**Degree of Protection**
- IP67

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This unit is a class IIIB laser product and Complies with EN60825-1:2001. Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated July 26, 2001.

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

Visit our website at: www.betalasermike.com

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