



# LASER SCANNER LS 840/LS 880

The high performance of the FARO Laser Scanner LS can be used with minimal training to capture 3-D point cloud data. Whether documenting a 50,000 square foot building or accurately capturing the scene of a crime, the possible applications are almost unlimited. The FARO Laser Scanner LS produces three dimensional black and white images where every pixel has an X, Y, Z coordinate. For enhanced realism, color can be added to the pixels. Measurements can be made directly in the point cloud and 3-D objects can be generated. These can be used to create dimensionally accurate CAD models.

- Ideal for large-volume scanning
- Scans up to 120,000 points/sec.
- ±3mm linear accuracy
- Up to 100 times faster than time-of-flight scanners

## Most Common Applications

### Product Design/Compare, Architecture & Civil Engineering:

As-Built Documentation, Dimensional Calculations

### Petrochemical, Power Plant, Process Industry:

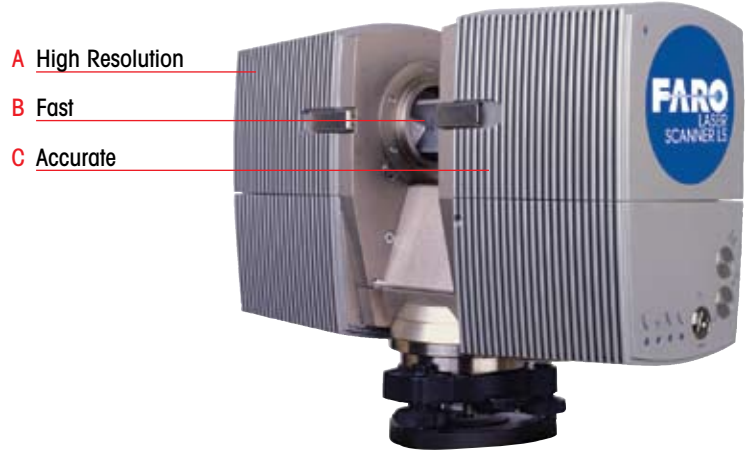
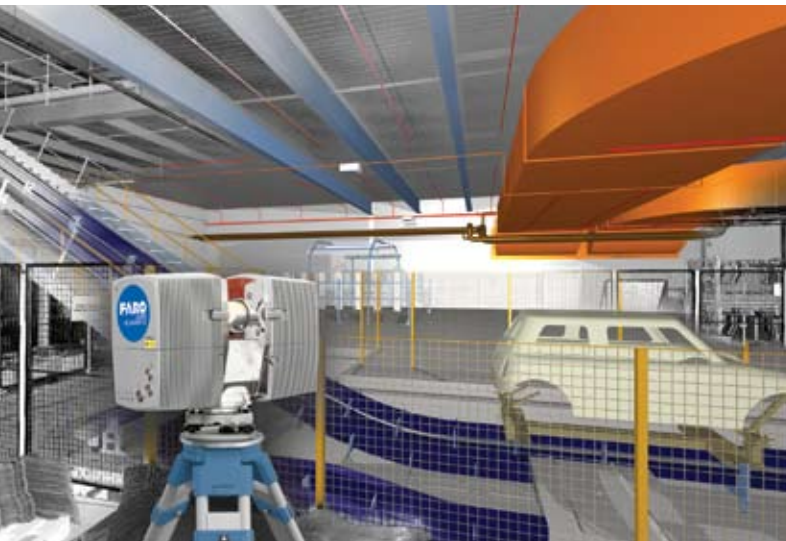
Reverse Engineering, As-Built Documentation

### Forensics:

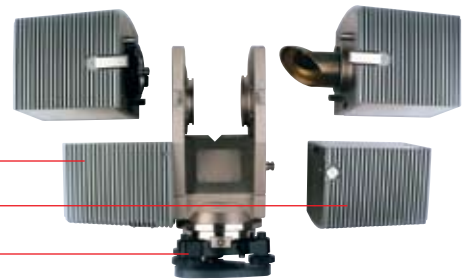
Blood Spatter Analysis, Bullet Trajectory

### Heritage:

Colored Orthophoto, Fly-Through



- A **High Resolution**
- B **Fast**
- C **Accurate**



- D **Surrounding Field-of-View**
- E **Independent**
- F **Universal Quick-Mount**

- A A scan has typically 28 million 3-D pixels
- B Up to 120,000 3-D measurements per second
- C ±3 mm linear accuracy at 25 m
- D 360° horizontal and 320° vertical
- E Data recording on internal hard disk
- F For mounting on a surveyor tripod

### Ranging Unit

<b>Range</b>	0.6m-40m <sup>1)</sup> (LS840) / 0.6m-76m <sup>1)</sup> (LS880)
<b>Resolution</b>	0.6mm - 17 Bit Range / 9 Bit Intensity
<b>Measurement Speed</b>	120,000 Hz
<b>Syst. Distance Error<sup>1)</sup></b>	±3 mm at 25 m
<b>Repeatability (LS 840/10 mW)<sup>1,2)</sup></b> <i>(filtered/raw data)</i>	@10m: 0.8/3.1mm rms @ 90% refl./1.7/6.8mm rms @ 10% refl. @25 m: 1.4/5.4 mm rms @ 90 % refl.   3.4/13.6 mm rms @ 10% refl.
<b>Repeatability (LS 880/20 mW)<sup>1,2)</sup></b> <i>(filtered/raw data)</i>	@10 m: 0.7/2.6 mm rms @ 90 % refl.   1.3/5.2 mm rms @ 10% refl. @25 m: 1.1/4.2 mm rms @ 90 % refl.   2.5/10 mm rms @ 10% refl.

### Deflection Unit

<b>Vertical Field of View</b>	320°
<b>Horizontal Field of View</b>	360°
<b>Vertical Resolution</b>	0.009° (40,000 3D-Pixel on 360°)
<b>Horizontal Resolution</b>	0.00076° (470,000 3D-Pixel on 360°)
<b>Angular Resolution (hor./vert.)</b>	±0.009°
<b>Max. vertical scanning speed</b>	1,800 rpm
<b>Scanning Time</b>	at 7 mio. points 67 sec.

### Laser (Optical Transmitter)

<b>Laserpower (CW average)</b>	(LS 840) 10 mW, (LS 880) 20 mW (Laser Class 3R)
<b>Wavelength</b>	785 nm
<b>Beam Divergence</b>	0.25 mrad (0.014°)
<b>Beam Diameter (at exit)</b>	3 mm, circular

### Handling of Data

<b>Internal PC</b>	Pentium III with 700 MHz, 256 MB RAM 40GB HD; Windows® 2000, Windows®XP
<b>Data Storage</b>	local: on internal hard disc drive <i>(for most resolutions)</i> remote: via Ethernet on external PC or laptop
<b>Scanned Control</b>	via Ethernet or WLAN by PC or PDA, on local network or internet

<sup>1)</sup> Measured on a non moving orthogonal 90% reflectivity reference paper in averaging mode. More details upon request.

<sup>2)</sup> Noise compression filter. More details upon request.

ISO/IEC 17025 accredited

### General

<b>Power Supply Voltage</b>	24V DC (Battery Pack or AC converter)
<b>Power Consumption</b>	~60 W
<b>Ambient Temperature</b>	5° - 40° C
<b>Humidity</b>	non-condensing
<b>Inclination Sensor</b>	optional (accuracy 0.01°; resolution 0.001°; range ± 15°)
<b>Weight</b>	35lb (14.5 kg)
<b>Size (L*W*H*)</b>	15.7" * 6.3" * 11" (400 mm * 160 mm * 280 mm)
<b>Maintenance Calibration</b>	once a year
<b>Exchange Modules</b>	distance sensor / mirror axis / PC
<b>Georeferencing</b>	yes
<b>Cable Connector</b>	located in the non-rotating foot of the scanner
<b>Control Panel</b>	yes; operation without external PC/Laptop



*"With the FARO Laser Scanner LS, we doubled our revenue in one year."*  
— Matthias Grote, Planungsbuero Berlin



GSA Contract Holder

**www.FARO.com**  
**800.736.0234**



**ACCREDITED**  
**Certificate # L1147**