

## Application Notes

# Leveling with the L-730 and L-740 Laser Systems

### L-730/L-740 Applications

- General Leveling • Sole Plate Flatness
- Machine Bed Flatness and Straightness
- Surface Plate Flatness • Large Part Flatness
- Wind Tower Flange Flatness

For basic leveling applications, there isn't a better, faster, or more accurate way of aligning surfaces to earth level than the L-730 Precision Leveling Laser. For applications that require greater accuracy, we also offer the L-740 Ultra-Precision Leveling Laser, which is 4 times more accurate.

The L-730 was designed for leveling applications requiring 0.00012"/ft. (0.013 mm/M) accuracies or higher. The system is an extremely portable, yet affordable alternative to traditional leveling methods like theodolites or transits. An automatically sweeping laser plane and wireless, large-range targets with 0.00002" (0.0005 mm) resolution create a powerful tool for quickly alignment almost any surface or machine bed.

### L-730/740 Capabilities

- Flatness and level of surfaces up to 100 feet (30 M), such as machine beds, machine tables, large parts, flanges, surface plates
- Bed rail twist
- Parallelism of multiple surfaces



## The L-730/L-740 Laser Systems

### Automatically Rotating Laser Plane

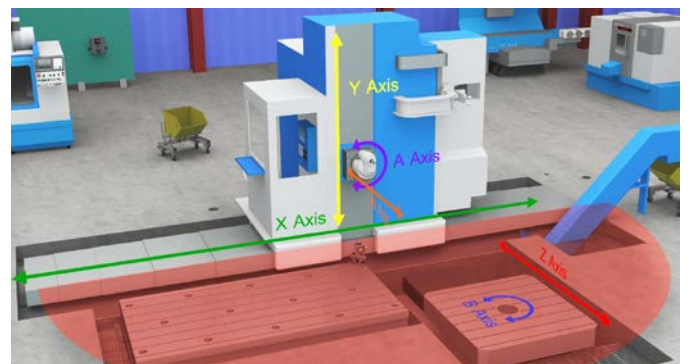
The L-730 and L-740 Lasers offer automatically rotating laser planes, unlike competitive "point-and-shoot" lasers. This saves a tremendous amount of time since you don't have to point the laser at the target every time you want to take a data point. The lasers have a range of 100 feet (30 M) in radius.

### Highest Accuracy in the Industry

The L-730 Precision Leveling laser offers a laser plane flatness of 2 arc seconds (.00012 in/ft or 0.01 mm/M), which is 2-4 times better than the competition. For extremely high accuracy applications, we also offer the L-740 Ultra-Precision Leveling Laser with a plane flatness of 0.5 arc seconds (.00003 in/ft or 0.0025 mm/M).

### Built-in Level Vials

The L-730 and L-740 have 2 level vials built into the laser that are also accurate to 2 arc seconds. These levels can be calibrated in the field using an easy 15-minute procedure, and they usually hold calibration for several months. For high-accuracy leveling applications, the L-740 offers the L-740SP Split-Prism Level upgrade, which delivers accuracy to 1 arc second.



## Wireless Targets and Readouts

Our A-1519-2.4ZB and A-1520-2.4ZB targets feature wireless communication to a ruggedized PDA (R-1355-2.4ZB), which can display up to five targets simultaneously with resolutions down to 0.00002" (0.0005 mm) and up to a 1" (25mm) measuring range. Other features like electronic zeroing and target averaging help to speed alignments. These wireless targets eliminate long extension cords for reference targets. They work with all of our continuously rotating laser plane systems and can be used up to 100' (30.5 M) from the laser.



## Multiple Targets for Large Applications

Using Zigbee® Radio wireless technology, more than one target can be used, which is extremely useful on large surfaces or machine beds. This allows the use of multiple work crews, which can really speed alignments, and also allows targets to be used to monitor laser drift during the alignment, which is critical for good results on large machinery.

## Real-Time Alignment Data

As with all Hamar Laser products, the L-730 Precision Laser Leveling System provides real-time alignment data. This means that you can put a target over a jacking bolt, begin adjusting it, and the reading automatically updates.



## Minimal Training Needed

These systems are so easy to use that it usually only requires one day of training (unless our Plane5 software is purchased with the system, which adds one day of training). Compared with optics, where training can last up to two weeks, the L-730 can significantly reduce the time that critical technicians are unavailable while being trained.

## A-910-2.4ZB Wireless Computer Interface

The A-910-2.4ZB computer interface is a small, compact USB dongle wireless receiver that communicates with up to 99 2.4GHz ZigBee® targets with a wireless range of up to 200 feet (60 M). Power is supplied by the laptop computer's USB port and the system IDs can be changed in the software.



## Lightweight Auxiliary Readout Attaches Directly to Targets

The R-1308 Auxiliary Single-Axis Readout connects directly to the auxiliary (AUX) port on the side of the A-1519-2.4ZB/A-1520-2.4ZB Wireless Targets. The target position may be viewed in either inches or millimeters and the display shows readings in either Relative (Zero) or Absolute mode. The unit slides on the post of the magnetic base supplied with the target.

## Versatile Plane5 Software for Recording and Analyzing Data

The L-730/L-740 Systems can be linked to our Plane5 analyzing software. Plane5 is Microsoft Windows-based and can analyze almost any layout for flatness or straightness.

## Alignment System Features

- Continuously rotating diode laser with 100' (30.5 M) radius operating range.
- Instant "on" with virtually no warm up.
- Setup in as little as 10 minutes.
- L-730 Laser plane flat to 2 arc seconds (0.00012 in/ft or 0.01 mm/M).
- L-740 Laser plane flat to 0.5 arc seconds (0.00003 in/ft or 0.0025 mm/M).
- Uses A-1519-2.4ZB Single-Axis Wireless Target with .00002" (0.0005 mm) resolution.
- R-1355-2.4ZB PDA Readout displays data for up to 8 A-1519-2.4ZB Targets simultaneously.
- Live data display.
- Backlit, precision level vials accurate to 2 arc seconds (0.00012 in/ft).
- Upgrade to L-730SP Split-Prism Levels for 1 arc second accuracy.
- Uses AC adapter or battery pack.
- Win7/8/10 Plane5 software quickly records and analyzes flatness data.

### Recommended System Configuration

L-730 Precision Leveling Laser  
A-1519-2.4ZB Single-Axis 2.4 GHz  
Wireless Target  
R-1308 Auxiliary Readout  
A-910-2.4ZB Computer Interface  
R-1388 Plane5 Software  
A-809XL Shipping Case

### Optional Accessories

L-106 Instrument Stand  
R-1355-2.4ZB Ruggedized PDA Wireless  
Readout  
**High-Accuracy Flatness Laser & Target**  
L-740 Ultra Precision Leveling Laser  
A-1520-2.4ZB Single-Axis 2.4GHz  
Wireless Target  
M-1519SP Surface Plate Measuring Base  
for A-1519-2.4ZB and A-1520-2.4ZB  
Targets