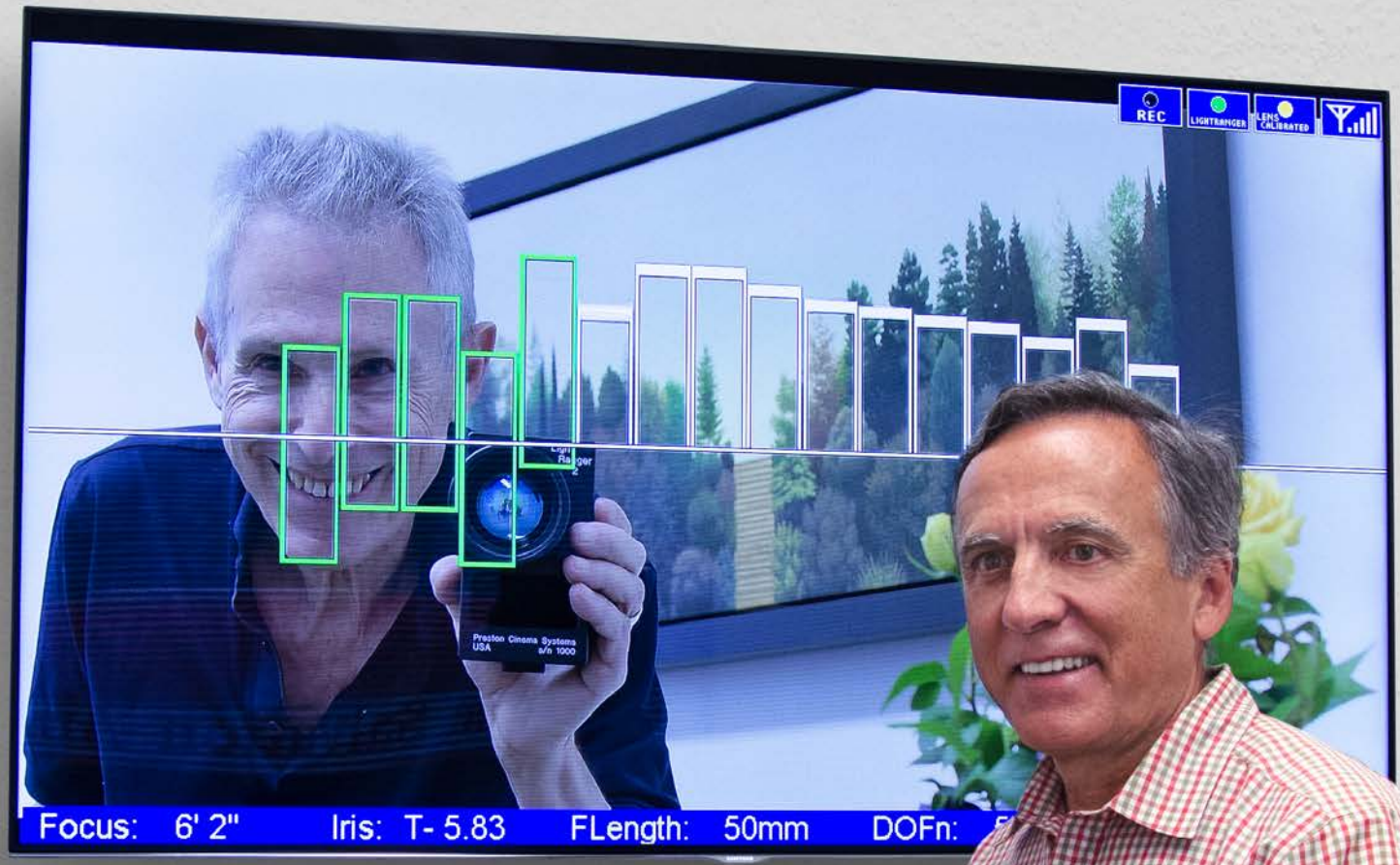
Jon Fauer, ASC www.fdtimes.com June 2014 Cine Gear Edition Issue 61

FILM AND DIGITAL TIMES

Art, Technique and Technology in Motion Picture Production Worldwide



Preston Light Ranger 2

1. Emitter bounces Infrared light off objects in the scene.

2. Bounced Infrared beam is captured by the detector array behind the LR2 lens.

The angle of the infrared beam is about 18° and its range is about 150 feet.

Light Ranger 2 from Preston Cinema Systems could be the most important invention of the year for motion picture production.

Although FDTimes tries to follow the National Geographic style of subdued enthusiasm and avoidance of incendiary adjectives, this new focus tool is revolutionary. No focus puller will leave home without one...for each camera.

While audiences tolerated the taunts of Lars Trier's robotic camera operators, his experiments in neglecting focus had spectators heading for the exits. And that is why we have Gods of Focus: consummate professionals who maintain continuously sharp images while people and things move in moving pictures.

The job of pulling focus has evolved. Focusing with new digital cameras seems to be more critical. Sensors are more sensitive and resolution goes more K, Higher ISOs enable shooting in ever darker places, with fast lenses "wide open with a wrench." I think circles of confusion are shrinking: film may have been more forgiving than static CMOS sensors because the silver halide crystals were in constant motion and their random patterns may have provided more comfortable depth of field.

Currently there are three schools of pulling focus. 1: Watch by eye (use the Force). 2: Watch the monitor. 3: Get in the Zone (with the new Light Ranger 2).

Preston Cinema Systems Light Ranger 2 is an innovative tool that graphically divides a monitor into zones and intuitively guides your focus pulling in the correct direction.

The system consists of two units. The sensor unit sits atop the camera, preferably above the lens. Using parallax correction found in the on-screen menu, it can be placed anywhere that's convenient. A quick setting calibrates the offset.

The Video Interface box attaches easily to the back of almost any monitor. It receives focus information from both the Light Ranger 2 and the Preston FIZ HU3 Hand Unit.

A beam of infrared light emitted by the Light Ranger 2 bounces off the objects and subjects in the scene, and is captured by the detector array behind the unit's lens. It's safe infrared. There are no lasers, no ultrasonic signals, no transponders attached to actors.

Light Ranger 2 works in harmony with Preston Wireless FIZ system HU3 hand unit and MDR3 motor driver. Plug the Serial port into your MDR3, power it up, aim, calibrate, and shoot.

You still control focus the way you always did. The same skills developed by years of muscular-neurological memory are applied. You still control speed, point of interest and splits.

The Light Ranger 2 divides the monitor into 16 zones, like a bar graph. Rectangles above the horizontal line show areas behind your established distance. Rectangles below are in front.

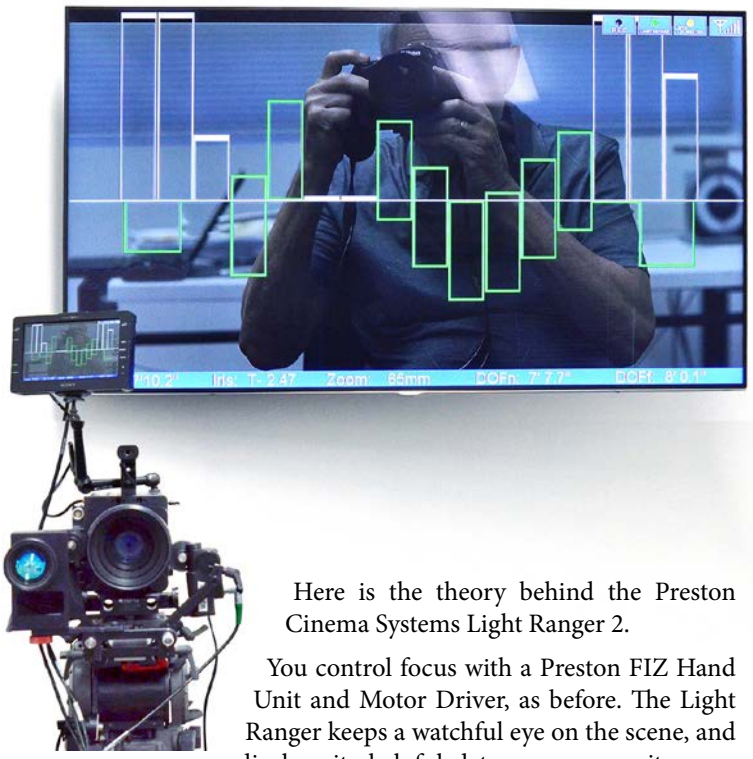
Things that are in focus are shown in green. The genius of all this is how intuitive it is to pull focus, because it graphically shows which way to turn the knob of your wireless FIZ hand unit. As Zoran Veselic, camera assistant (see cover) said, "this is a tool that can help, and we welcome any help we can get."

Howard Preston invented the original Light Ranger and patented it in January 1990. It was used on "Without Limits," "Thirteenth Warrior," "The Mighty Ducks," "Spiderman," "Benjamin Button", "The Patriot" and many commercials.

Preston Cinema Systems Light Ranger 2 is patent pending. It will cost under $10,000, and should be ready to ship this September.

Worldwide: www.prestoncinema.com
Europe: www.prestoncinema.eu

Above and Below the Line: How the Light Ranger 2 Works



Here is the theory behind the Preston Cinema Systems Light Ranger 2.

You control focus with a Preston FIZ Hand Unit and Motor Driver, as before. The Light Ranger keeps a watchful eye on the scene, and displays its helpful data on any monitor you choose to use.

Many of us agree that video monitors are helpful in checking focus. But up to now, there were several challenges:

- Once you see buzzed focus, it's often too late.
- Sometimes it's difficult to tell whether you have to pull forward or backward to correct.
- Peaking doesn't tell us that much.
- On many episodic TV series, there often isn't enough room for the focus pullers, and they often work outside the set. On multiple camera shoots, there will be one monitor and one wireless focus unit for each camera and each assistant.

So, here's how the Light Ranger 2 works.

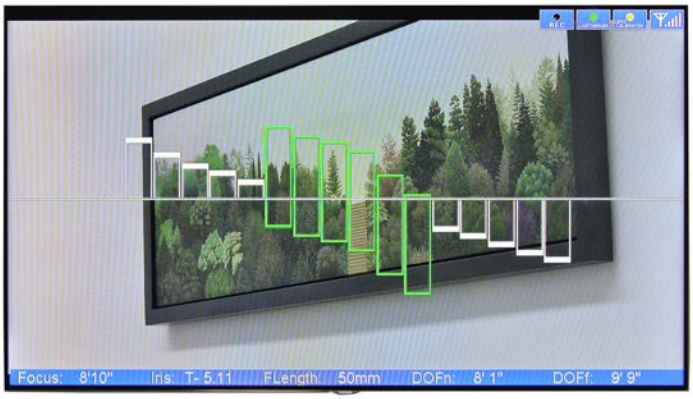
The graphic video overlay divides the video monitor into 16 zones. A horizontal bar runs across the middle of the screen.

The overlay shows 16 focus zones. It looks like a bar graph. Each zone has a white bar whose height indicates the distance and direction the subject is from the plane of focus. The zone color changes to green when the subject is within the lens depth of field.

Bars above the line are behind the plane of focus. Bars below the line are in front of the plane of focus. Green bars show areas that are in focus. They show your depth of field, automatically calculated by lens focal length, distance and T-stop.

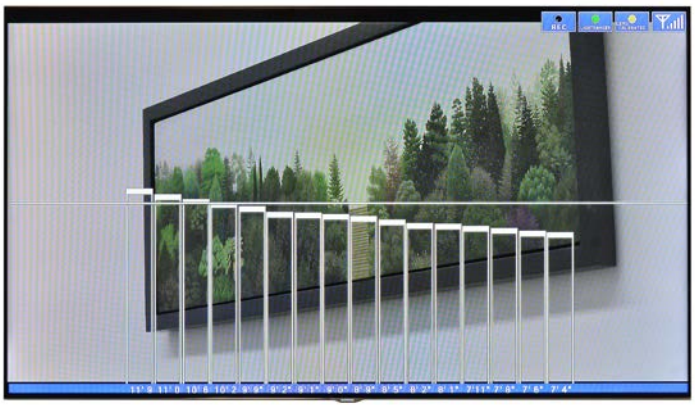
The graphic overlay on the monitor shows the distance and the direction the subject is from the plane of focus: you don't need to compare lens focus setting to distance measurement.

Simple distance ranging mode shows distances for all 16 zones simultaneously when you want quick information or cannot run a focus tape.



Bars above the line are behind the plane of focus. Bars below the line are in front of the plane of focus. Green bars show areas that are in focus. They also show your depth of field, automatically calculated by lens focal length, distance and T-stop.

Note the lens data in the blue bar at the bottom of the screen: Focus Distance actually set on the lens, Iris, Focal Length of lens, Depth of Field near distance, and Depth of Field far distance.



Simple distance ranging mode shows distances for all 16 zones simultaneously when you want quick information or cannot run a focus tape. Painting: "Golden Stairs," 1991, by Astrid Preston.

The original Light Ranger (at right) on location for "Without Limits" (1998). Director: Robert Towne. Cinematographer: Conrad L. Hall, ASC. First AC: Zoran Veselic.

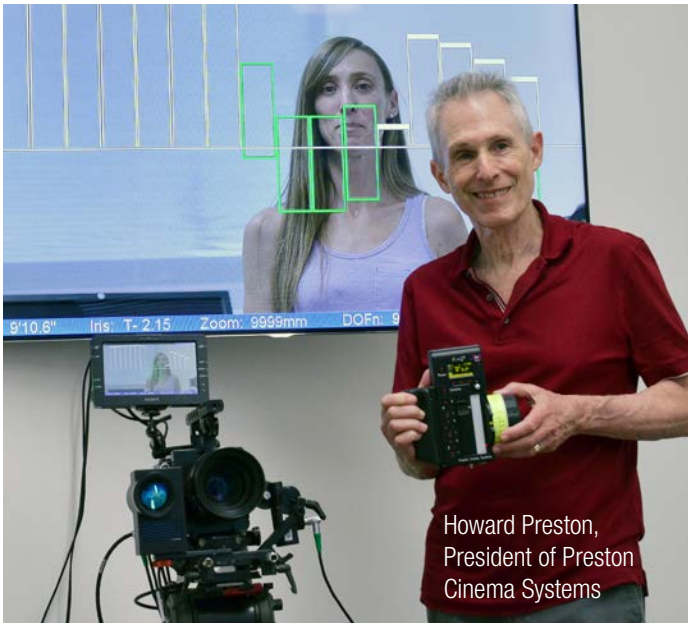
Preston LR2 Autofocus

STOP THE PRESSES!

Fast action, no marks, no waiting? Insanely complicated camera moves? Help is on the way. We got this news as the presses were about to roll. Autofocus capability has just been added to the Preston Light Ranger 2.

Choose "Autofocus" in the HU3 main display. (It replaces the "Marks" selection.) Press the soft key (middle button). The lens will focus on the closest subject in the center third of the focus zones. A red rectangle overlays the image on the monitor to outline the Autofocus detection area.

Want to go from Autofocus to Manual? The monitor shows both the Light Ranger 2 distance measurement and your focus knob setting. Turn the focus knob to match the LR2 distance, press the Autofocus soft key again, and you'll return to manual control without a focus jump.

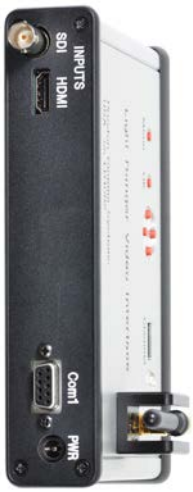


How to Connect the Light Ranger 2

1. Attach the Light Ranger 2 Sensor Unit on top of your camera. Aim it in the same direction as the optical axis of the lens. The LR2 has a ¼-20 thread on the bottom for easy mounting to a mattebox bar, Schulz Quickfix, or Noga style arm.

2. Feed the 2-pin POWER connector with 10-30 V DC.

The SERIAL plug of the Light Ranger 2 connects directly to the SERIAL port of the Preston Motor Drive MDR3.



3. The Video Interface Receiver attaches to the back of your viewing monitor. It can connect in-line (BNC HD-SDI or HDMI). The video signal from the camera feeds "Video Input" and "Video Output" connects to the monitor.

Parallax correction of the Light Ranger 2 mounting position relative to the camera lens is controlled by the Video Overlay menu.

Preston LR2 Specs

Light Ranger 2 Sensor Unit

- Size: 3" x 5" x 1.5" — case is milled from solid block of aluminum
- Weight: 550 g
- Power: 10-32 VDC
- Mount: ¼-20 thread
- Connects to serial port of MDR3.
- Uses MDR3 wireless link to Video Overlay Module.

Video Interface Receiver Unit

- Size: approx 5" x 7" x 1" (future units may be smaller)
- Inputs: HD-SDI or HDMI inputs from camera or wireless video receiver
- Outputs: HD-SDI or HDMI to monitor
- Receives data from MDR3 — set to same wireless channel as MDR3 and HU3
- Power Input 10.5- 32 VDC