



**The Lightning® DigiStreak™** is an affordable, yet extremely powerful digital streak camera. The camera's exceptional line scan performance and its ample internal memory provide the ability to very precisely capture ultra high-speed events that take place over relatively long duration timeframes.

Packaged as a self-contained camera that can be networked to a PC via Gigabit Ethernet, the Lightning® DigiStreak™ records 1280 x 1 pixel "streak" lines at up to 543,000 lines per second (lps). Line exposures are set independently from recording rates, and can be as brief as 1 microsecond. One GB of internal solid-state memory provides storage for more than 838,000 lines of image data, resulting in a record time of 1.68 seconds at a line rate of 500,000 lines per second.

The Lightning® DigiStreak™ is available in two versions – the Standard model and the Advanced model. Both models provide identical line rates, exposure options and image storage. In addition, both models can be upgraded with optional IRIG-B time coding. The Standard model provides 8-bit image capture while the Advanced model offers both 8-bit and 10-bit image capture. The Advanced model also provides the ability to automatically trigger the camera when an object enters the field of view (image cueing).

Live image data is displayed on a PC screen via Gigabit Ethernet during both Live and Record modes. The image data can also be displayed on any RS-170 video monitor, allowing live focus at the camera even in the absence of a PC. The Lightning® DigiStreak™ can be disconnected from the Gigabit Ethernet network while the camera awaits a trigger, and then reconnected for image download and analysis after the recording is done. Captured streak lines are displayed adjacent to each other, forming a 2-dimensional image of the ultra high-speed event. The height of the image is 1280 pixels, and the width is equivalent to the number of lines captured during the recording.

The operator can easily pan and zoom throughout the image data during the image review process. Integrated analysis tools include image calibration, distance measurement, pseudocolor, and histogram functions. A very precise time line can be displayed adjacent to the image data. At any time, the user can save a desired portion of the image data as an industry standard BMP, JPEG or TIFF file.

DRS DATA & IMAGING SYSTEMS, INC.



### Features

- 1280 x 1 pixels at line rates to 543,000 lps, in increments of 1 lps
- Line exposures to 1 microsecond, in increments of 1 microsecond
- Recording times to 1.68 seconds at 500,000 lps
- 8- and 10-bit\* imaging options
- Auto trigger when object enters field of view (image cueing\*)
- Autonomous, non-networked operation

### Typical Applications

- Ballistics
- Crack propagation
- Detonics
- Fast Optical Oscilloscope
- Fluid dynamics
- Material deformation
- Precision timing of various events
- Rocket engine burns
- Time resolved spectroscopy

### Available Models

Standard . . . . . 8-bit image data  
 Advanced . . . . . 8- and 10-bit image data; auto trigger when object enters field of view (image cueing)

### Imaging Performance

Sensor . . . . . 10-bit CMOS, 1280 x 1 pixel resolution @ up to 543,000 lines per second  
 Pixel Bit Depth . . . . . Operator selectable 8- or 10-bit\* mono  
 Electronic Shutter . . . . . Global, with exposure times from 1 microsecond to 1/line time

### Triggering and Synchronization

Trigger . . . . . TTL (high, low, positive, or negative), switch closure, software, or image cueing\*  
 Variable trigger . . . . . Pre-, post- and center-triggering; adjustable in 1% memory increments  
 Camera synchronization . . . . . 2 cameras can be synchronized within one image line

### Mechanical and Power Specifications

Camera dimensions . . . . . 4.25 H x 4.25 W x 11.0 L inches (108 x 108 x 254mm)  
 Camera weight . . . . . 3.3 lbs. (1.5 kg)  
 Lens mount . . . . . C-mount standard, F-mount requires standard C- to F-mount adapter  
 Voltage and power . . . . . 2A @ 24V through supplied AC adapter

### Networking

. . . . . Gigabit Ethernet (1000 Base-T) with TCP/IP protocol

### Image Storage

. . . . . 1 GB of internal memory provides storage for 838,780 8-bit lines or 699,000 10-bit\* lines

### Image File Format

. . . . . BMP, JPEG, TIFF, RAW

### IRIG

. . . . . Optional IRIG-B time code

### Camera Control

. . . . . 2 cameras can be controlled simultaneously from a single PC via Ethernet

### Image Display and Playback

. . . . . Live image display on a PC or via RS-170 output during camera setup and recording

### Image Analysis

. . . . . Panning and zooming functions with time line graph  
 . . . . . Image calibration, distance measurement, pseudocolor, and histogram functions

### Minimum PC Recommendation

CPU . . . . . Pentium class or equivalent  
 Display . . . . . 32-bit color display with 1024 x 768 resolution  
 Memory . . . . . 256 MB RAM, 20 GB hard drive  
 Network interface . . . . . 1000-Base T (Gigabit) Ethernet  
 Operating system . . . . . Window™ 2000, or Windows™ XP

\*10-Bit image data and image cueing are available only with the Advanced model.

