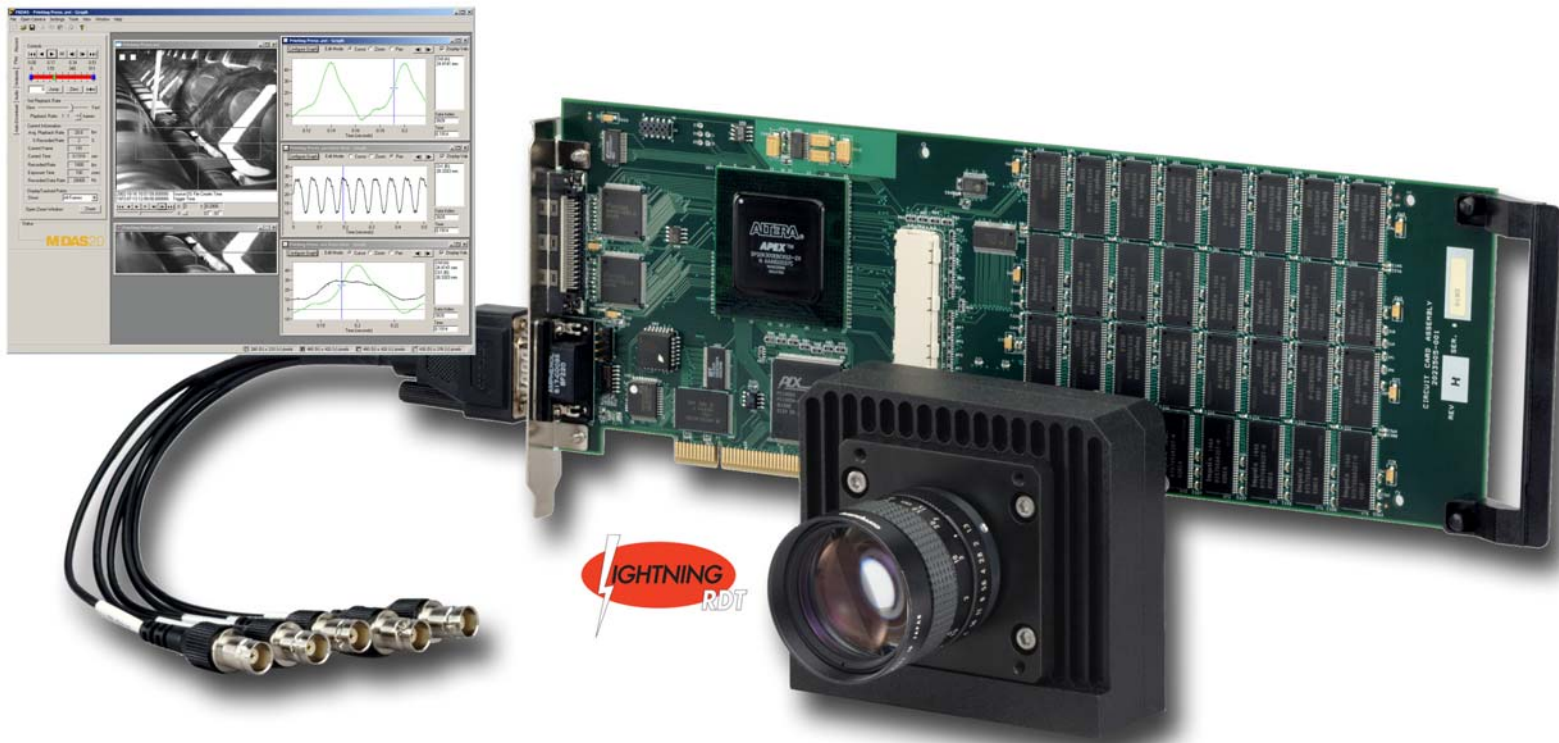


# DRS's LIGHTNING RDT™ HIGH-SPEED DIGITAL CAMERA



(Camera lens not included)

The Lightning RDT™ (Research, Design and Test) camera combines high-speed digital video, intuitive camera control software and powerful analytical functions with the capabilities of an “off-the-shelf” PC to provide an integrated, high-speed imaging system with sufficient performance and flexibility to address a wide range of motion analysis requirements.

Consisting of a small camera head, detachable cable and custom frame grabber board, the Lightning RDT™ captures 1,280 x 1,024 resolution images at 500 full frames per second (fps). A very fast 16,000 fps can be achieved at reduced resolution for recording extremely rapid events.

Available with interchangeable camera heads for monochrome, color and low-light recording, a single system provides the ability to record high-speed events in many different situations.

## **Typical Applications**

- Aerodynamics investigation
- Bio-mechanics studies
- Component safety testing
- Drop, shock and vibration testing
- Impact analysis
- Particle image velocimetry (PIV)
- Production line diagnostics
- Vehicle rollover testing
- And much, much more ....

The camera features extremely long recording time to capture extended duration events, such as vehicle rollovers and missile flights. Optional expanded memory and nearly 20 seconds of full-resolution recording at 500 fps are available without compression. And, the record time can be doubled by capturing the event at 250 fps, or by reducing the camera resolution by 50%. Doing both quadruples the record time to nearly 80 seconds.

The Lightning RDT™ is bundled with MiDAS 2.0 software from Xcitex, Inc., enabling operators to easily control up to 16 cameras simultaneously, perform vital motion analysis and save digital video data in a variety of different file formats, including AVI, BMP, JPEG and TIFF. Optional MiDAS 2.0 modules provide the synchronization of high-speed video with instrumentation data from a wide variety of sensors, gauges, tachometers, IRIG/GPS encoders and other devices.

DRS DATA & IMAGING SYSTEMS, INC.



### Features

- 1,280 x 1,024 pixels at 500 full fps
- To 16,000 fps at reduced resolutions
- Interchangeable monochrome, color and low-light camera heads
- 8-bit monochrome images; 24-bit color images
- To 12 GB memory for storage of 9,828 full-resolution images
- Integrated with complete line of MiDAS 2.0 modules from Xcitex, Inc.

### Available Models

|        |  |
|--------|--|
| RDT/1  | 500 full fps; partial frames to 1,000 fps  |
| RDT/2  | 500 full fps; partial frames to 2,000 fps  |
| RDT/16 | 500 full fps; partial frames to 16,000 fps |

### Imaging Performance

|                         |  |
|-------------------------|--|
| Sensor                  | 10-bit CMOS sensor, 1,280 x 1,024 pixel resolution @ 500 full fps      |
| Image resolution        | 1,280 x 1,024 full frame, with operator-selectable reduced resolutions |
| Pixel bit depth         | 8-bit monochrome and 24-bit color                                      |
| Electronic shutter      | Global with exposure times from 2 microseconds to 1/frame rate         |
| Automatic exposure mode | Operator-selectable adjustment up to 1 F-stop per image frame          |

### Triggering and Synchronization

|                        |   |
|------------------------|---|
| Trigger                | TTL (high, low, positive or negative), switch closure or software |
| Camera synchronization | Multiple cameras can be synchronized within 4 microseconds        |
| Exposure out signal    | Available for synchronizing camera to a strobe or other device    |

### Mechanical Specifications

|                      |   |
|----------------------|---|
| Camera dimensions    | 3.6 H x 4.2 W x 1.7 D inches (105 x 91 x 52 mm)   |
| Lens mount           | C-mount standard, F-mount adapter optional  |
| Custom frame grabber | Full-size 32-bit PCI 2.2 board  |
| Camera cable length  | 5 meters standard, 10 meters optional, detachable at both frame grabber and camera head |

### Frame Storage

|                           |                          |
|---------------------------|--------------------------|
| Base memory (standard)    | 4 GB; 3,274 full frames  |
| Medium memory (optional)  | 8 GB; 6,551 full frames  |
| Maximum memory (optional) | 12 GB; 9,828 full frames |

### Control/Analysis Software

|  |  |
|--|--|
|  | Up to 16 cameras can be controlled simultaneously; number of cameras depends upon performance characteristics of associated PC |
|  | Analysis functions provide angular, linear, velocity and rotational measurements   |
|  | Auto-tracking is available with optional Xcitex, Inc. MIDAS 2.0 add-on modules   |

### Data Acquisition/IRIG

|  |   |
|--|---|
|  | Optional Xcitex, Inc. MIDAS 2.0 modules provide data acquisition and IRIG/GPS functionality that allow images to be recorded in synchronization with instrumentation data |
|--|---|

### Image Display/Playback and File Formats

|  |  |
|--|--|
|  | Live image display during camera setup and recording |
|  | User-selectable playback rates                       |
|  | AVI, BMP, JPEG, TIFF image file formats              |

### Minimum PC Recommendation

|  |   |
|--|---|
|  | 1 GHz Pentium®2 with 1,024 x 768 resolution display |
|  | 256 MB RAM, 20 GB hard drive, 64 MB video RAM       |
|  | CD/DVD-RW drive, one vacant PCI full-length slot    |
|  | Windows®NT, Window®2000 or Windows®XP               |

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