

DRS's Lightning™ LTTC HIGH-SPEED DIGITAL CAMERA



(Camera lens not included)

The Lightning™ LTTC camera combines high-speed digital video with extremely robust mechanical packaging to provide a highly durable camera capable of capturing high-speed events in the most severe environments, making the camera ideal for use in airborne separation, explosions, ballistics and other very challenging applications.

Developed as a film camera replacement to support weapons separation testing on high-performance aircraft, the LTTC performs within a wide range of temperatures, altitudes, humidities, and shock/vibration levels.

The LTTC can be used either as an Ethernet-based stand-alone camera controlled from a laptop computer without additional devices, or in a network of LTTC cameras controlled from a single laptop. And in challenging airborne environments, the LTTC is fully compatible with all of the devices contained within DRS's integrated Airborne Separation Video System (ASVS).

Packaged as a small, self-contained camera head, the LTTC 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. The LTTC is available in monochrome, color and low-light configurations.

A real-time digital interface provides a mechanism through which third party integrators of solid-state memory farms and hard-drive arrays can instantaneously acquire the digital image data stream as transmitted from the camera head. When utilized, the digital interface facilitates record times limited only by the data capacity of the attached storage device.

Typical Applications

- Aerodynamics investigation
- Ordnance release testing
- Ballistics and blast/explosion analysis
- And much, much more

The LTTC camera is bundled with MiDAS 2.0 software from Xcitex, Inc. enabling operators to control cameras, perform vital motion analysis, and save digital video data in a variety of different file formats including AVI, BMP, JPEG, TIFF. Other 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
- 2 GB memory for storage of 1,600 full-resolution images expandable to 14 GB with optional PCI card attachment
- 8-bit monochrome images; 24-bit color images
- Withstands extreme temperatures, altitudes, humidity and vibration
- IRIG time code synchronization (optional)
- Real-time digital interface
- Compatible with all integrated ASVS devices
- Compatible with complete line of MiDAS 2.0 modules from Xcitex, Inc.

Imaging Performance

Sensor 10-bit CMOS sensor, 1,280 x 1,024 pixel resolution
Image resolution 1,280 x 1,024 at 500 fps, reduced resolutions to 16,000 fps
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 and Power Specifications

Camera dimensions 3.4 H x 2.6 W x 7.4 L inches (87 x 66 x 188 mm)
Weight 5.4 lbs (2.5 kg)
Lens mount C-mount standard, F-mount adapter optional
Voltage and power 115 VAC, 50-400 Hz, 22 W

Frame Storage

Standard 2 GB; 1,600 full frames
Expandable to 14 GB with optional PCI card attachment

Networking

. 10/100 Base-T ethernet

Control / Analysis Software

. Any number of cameras can be controlled simultaneously from a single computer
. 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
. RS-170 monochrome video also provided

Environmental

Temperature -55° to 55°C operational, -55° to 71°C non-operational
Altitude Sea level to 50,000 feet
Humidity Up to 100% RH with condensation (withstands rain)
Shock 20 G, 6 to 9 ms, sawtooth
Random vibration >27 GRMS
EMI/RFI MIL-STD-461-CE102, CS101, CS114, CS115, RE102, RS103
Salt, fog, dust and fungus MIL-STD-810

DRS DATA & IMAGING SYSTEMS, INC.
138 Bauer Drive
Oakland, NJ 07436

201.337.3800
Fax 201.337.2704
info@drs-dis.com
www.drs.com

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