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NASA TECH BRIEF



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High-Speed Pulse Camera

A miniaturized, 16 mm, high-speed (up to 100 frames per second) pulse camera, which has been designed, provides very uniform and controlled-duration exposures. The camera was designed to take a large number of accurate spectral photometric photographs upon instantaneous command and with minimum of film-transport time between exposures. The design combines several high-performance features into a very simple, reliable, compact, rugged, low-power package. The package includes a low-friction, low-inertia film transport; a very thin beryllium shutter driven by a low-inertia stepper motor for minimum actuation time after a pulse command; a binary data encoder for identifying each frame, recording the time, and recording the exposure conditions; and control electronics in a case of approximately 1×2×3 inches.

The camera contains a minimum of moving parts. There are no gears in the drive mechanisms, and most of the moving parts are simple rotating elements on reliable ball bearings. The rotor of the stepper motor drives the shutter directly, and the film drive claws are machined on the solenoid plunger. The camera is

built to withstand severe vibration, shock, and temperature environments. Up to 2500 frames of thin-base 16 mm film can be accommodated within the transport section, which measures $3\ 5/8 \times 3\ 7/8 \times 1$ inches.

Notes:

1. This camera would have direct application for synchronous operation in multiple-camera installations and for recording aperiodic as well as periodic events.
2. Details may be obtained from:
Technology Utilization Officer
Manned Spacecraft Center
Houston, Texas 77058
Reference: B68-10329

Patent status:

No patent action is contemplated by NASA.

Source: J. R. Lawson
of Massachusetts Institute of Technology
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Category 02