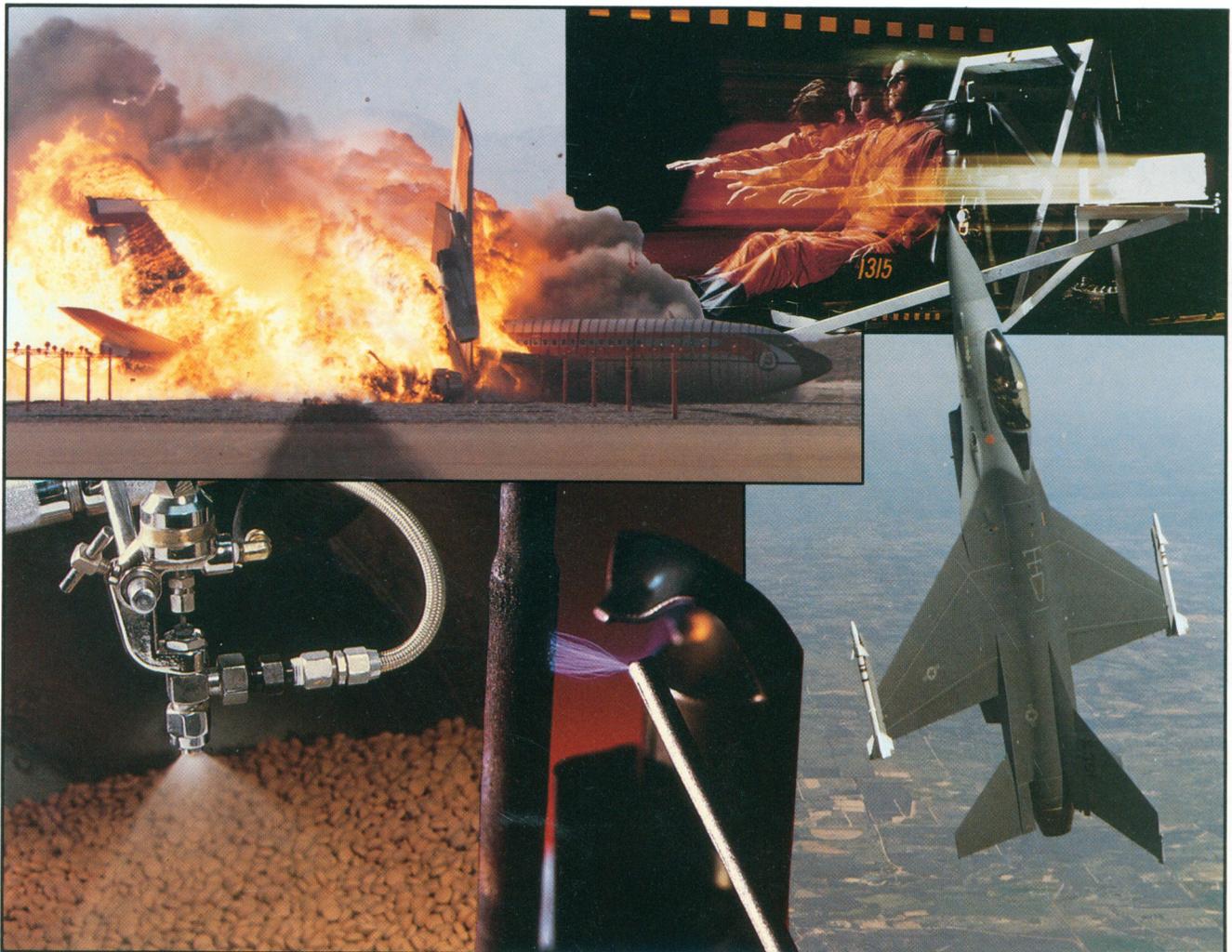


Short Form Catalog

# High Speed Photo / Video Systems

For Industry and Government



Instrumentation Marketing Corporation, IMC... We're the problem solvers, with the most complete range of high speed photographic and videographic instrumentation equipment available from any one company... and offices nationwide to serve you.

This shortform catalog shows the wide range of equipment we have available to solve high speed motion problems... from production line equipment to missile launch. In a wide range of applications, we have a way of looking at things... in slow motion, still frame, reverse — any way you need to look at it to pin-point a problem.

And we're more than an equipment company. We're a service company with a staff of professionals in photo/video analysis who are skilled in providing not only the right equipment but the right methodology to meet your particular need.

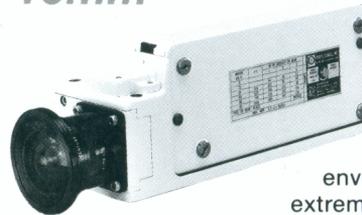
Contact us for your visual analysis requirements... *we have a way of looking at things!*



*Our demo vans are constantly touring the country. Contact us for a van schedule in your area.*

## High Speed Photo-Instrumentation Cameras

### 16mm



#### Photo-Sonics Model 16-1B

Rotary prism for operation in severe environments — High "G", extreme temperature and vibration, DC power, short run stop/start, plus full run of 16mm 100' and 200' film magazines at speeds from 10 to 1000 frames per second. Also available as Model 16-1BAC for 115 volt AC operation. This model also accepts a 400' magazine; has speeds of 200, 400, 600, 800 and 1000 fps. NOT for high "G" use.

Special models include 16-1C for high "G", extreme temperature and vibration and speeds to 4000 fps... Model 16-1E for 100 "G", 25' daylight spools and 200 to 600 fps... Model 16-1F, watertight, 150 "G", 100' daylight spools and 200 to 1000 fps.

#### Nac Model E-10

Rotary prism with speeds from 300 to 10,000 fps and continuous viewing thru the taking lens and thru the lens exposure setting device. Has 400' film capacity, regulated speed control to 10,000 fps and digital event synchronizer. Relay optical system allows streak or oscillograph recording simultaneously with primary object. Optional 1200' magazine for speeds up to 3000 fps.



#### Photo-Sonics Model 16-1VN

Smaller than most super-8 cameras, but provides the same high quality and ruggedness of other Photo-Sonics 16mm intermittent pin-registered cameras. Interchangeable 65', 100' and 200' magazines. Speeds — pulse up to 12 pps and/or cine only 16 to 200 fps. Has provision for plug-on automatic exposure control.

### Photo-Sonics Model 16-1PL

The most versatile 16mm intermittent pin-registered motion picture camera available today... 10 to 500 fps, interchangeable 200', 400' and 1200' film magazines. Options include continuous reflex optics, synchronous phase lock, built-in timing light generator and pulse kit.



### Photo-Sonics Actionmaster/500

Designed to meet the more sophisticated high speed filming requirements of hand held documentation motion picture photography. This hand held version of the 16-1PL features continuous reflex viewing to 500 fps, dual speed controls, 24 fps crystal option. Ideal for instrumentation photography as well as documentary/super slow motion.

### Photo-Sonics Actionmaster/200

This unique camera is the smallest and lightest 16mm hand held documentary camera available today! The complete weight is only 9 pounds with battery. It is especially suited for use in confined areas, while permitting maximum operator mobility. Variable rate power zoom included.



### 35mm



### Photo-Sonics Model 35-4ML

The most versatile high speed intermittent pin-registered 35mm motion picture camera available today... capable of normal speed and up to 200 fps... featuring interchangeable 200', 400' and 1000' film magazines plus synchronous phase lock and remote speed control options. Also available as Model 35-4MLX... x-ray version for cineradiological applications.

### Automax Series 35GS

The workhorse of 35mm industrial cameras for more than three decades. Operates pulse to 10 pps and cine to 16 fps. Has 100', 200' and 400' Mitchell mount magazines, single/double frame advance, variety of combinations of AC/DC, solid state electronics, built-in focusing and auxiliary data box.



### 70mm



### Photo-Sonics Model 70-14S

Lightweight hand held high resolution camera. Operates single pulse, up to 5 pps and up to 15 fps cine. 50' or 100' daylight loading models and exposure times up to 1/6000 second. Has self-contained optional rechargeable power pack. Five different viewing systems are available including reflex viewing. Image motion compensation is available.

## Annotation Equipment

### Photo-Sonics Film Data Recording System

for 16, 35 and 70mm cameras. Direct contact printing on every frame using micro miniature recording heads. Designed around CMOS technology, low-powered, highly noise immune. Records numerical or binary information. Small size. Available for a variety of different cameras.



### Photo-Sonics Timing Generators



**1. Photo-Sonics IRIG Timing Pulse Generator, Model CTPG/LED.** Provides output from IRIB B or 10, 100 or 1000 pps coded internal clock plus circuit for event marks. Made especially to drive LED's, 115 VAC, 28 VDC power inputs or 12 VDC internal NiCad battery with built-in recharger.

**2. Photo-Sonics Timing Light Generator, Model TLG.** Small, solid state and accurate, drives more than 10 neon lamps, provides pulses at 10, 100 and 1000 per sec. 28 VDC or 115 VAC input power.

**3. Model RTLG** is the ruggedized high "G" version of the TLG. DC only.

## Automatic Exposure Control



### Photomatrix Apex-B Automatic Exposure Control

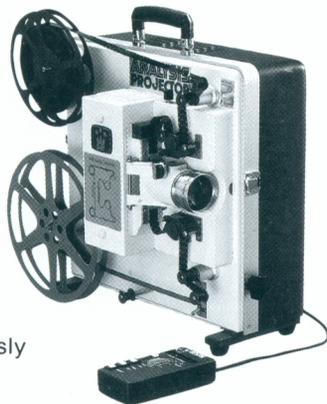
for 16mm and 35mm cameras. Operates on 15 to 30 VDC with a light range from 5 to 20,480 foot lamberts, covers ASA speeds

from 25 to 1600 in 1/3 f stop increments and shutter speeds from 1/12 to 1/12,800 sec. Response time is 6 f stops in 2 seconds or less. Adaptable to most cameras.

## Film Analysis Equipment

### Nac Model DF-16C Analysis Projector

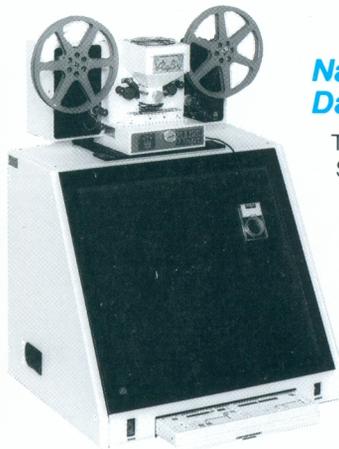
Built from the ground up as an analysis projector... not simply a modified commercial projector. Completely FLICKER-FREE at all projection speeds... forward and reverse. Continuously variable 0-18 fps, cine 24 fps. Remote control box for speed control; instant stop, single frame and forward/reverse, digital frame counter with zero reset and minus display for reverse.



### Nac Model 160F/350F Data Reduction Systems

The Models 160F and 350F Series Data Reduction Systems represent many years of experience resulting in a precision film reader for quantitative analysis. Incorporation of flickerless projection and ease of digitizing by cursor greatly enhances the speed of digitizing and reduces eye fatigue. The cursor incorporates a unique design

allowing for dark subject matter to be digitized by higher room illumination, automatically switching to a shadow cursor on brighter objects. Output in RS-232 or GPIB. Complete systems, including computer, printer and software, are further described under Nac Movias 200A.



### Nac Movias 200A System

A Complete Motion Analysis system designed for quantitatively analyzing movement of recorded objects in such fields as Physics, Bio-mechanics and Industry. The amount of movement, velocity, acceleration, force, momentum, energy and power of moving objects can be calculated by the Movias software package. Data points are simply input from the measurement points of the projected image. Plotting software included, plotter optional.



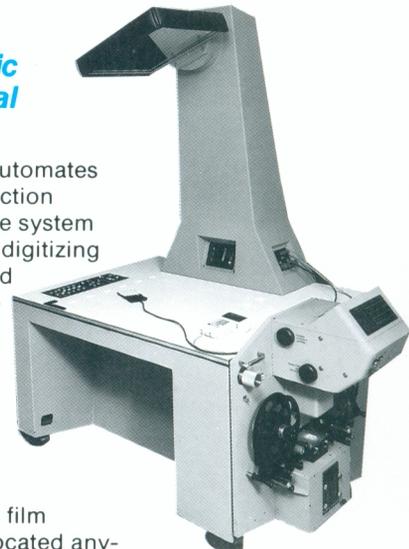
### Nac Model 78-1 Digital Analysis System

Fully automatic film reading where specific types of information are recorded on film such as dot matrices or alpha-numerics plus automatic tracking of cooperative shapes including a dot, cross or quadratic target such as often found in films used in range tracking, auto crash studies, biomechanics, medical applications, etc.



### Photo-Sonics Model 80-1 Automatic Film Reading Digital Analysis System

The Model 80-1 totally automates the process of data reduction from film. It is a complete system capable of reducing and digitizing information from film and converting that data into a digital format suitable for input to a large computer center for further processing. The Model 80-1 is compatible with many types of information recorded on film including dot matrices located anywhere on film, alpha-numerics and vernier dials. With the 80-1, dot, cross or quadratic targets can be tracked automatically. This reader is ideal for range instrumentation handling 16, 35 and 70 mm film.



# High Speed Video Instrumentation Systems

## Nac HSV-200 High Speed Video

Records at 200 fields per second, in full color. The system includes a specially designed 3-tube camera with mechanical shutter, a high output 20 microsecond strobe, portable record/playback unit, and a high speed monitor. Uses standard VHS cassettes and records a full 36 minutes with exposure times from 1/200 sec. to 20 microseconds. Playback modes are slow motion forward continuously variable from 1 to 15 fields/sec.; slow motion reverse — 10 fields/sec.; single field advance and still.



## Nac Model FHS-200 Field High Speed Video

A rugged militarized system for color or black and white recording at 200 fields/sec. Modular design combines components in rack mounted or portable units. Includes remote control and optional two-camera operation. Cameras can be remotied up to 13,000 feet (option). The VTR features a variety of playback modes — slow motion, single frame, still, reverse, etc. Complete sync from IRIG is optional.



## Nac Model HVRB-200 Compact High Speed Video

Ruggedized 200/60 field per second video recording system for airborne and field applications. The system includes the unique Nac MOS Model V-14 Camera combined with Model V-32 Video Tape Recorder which is patterned after the Nac SVCR-120R Mil Spec qualified recorder. Optional playback equipment includes VTR with remote control — slow motion, single frame, still, reverse, etc.



## Nac SVCR-120R Airborne Video Recorder

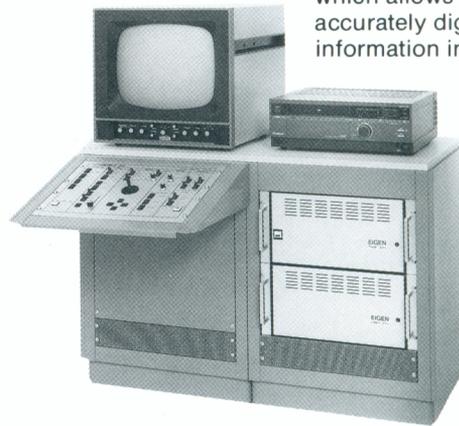
A compact, lightweight video recorder designed specifically for rugged military applications. The use of standard VHS cassettes allows recording of HUD cameras, infrared sensors and multi function displays for 2 full hours in color or black and white. The SVCR-120R has been used in the Space Shuttle, B-1, F-15, F-16, F-18, F-20, F-111 and is standard equipment on the TGM Maverick Missile and the OV-10D for the U.S. Marines.



## Videometrics/200 Video Analysis System

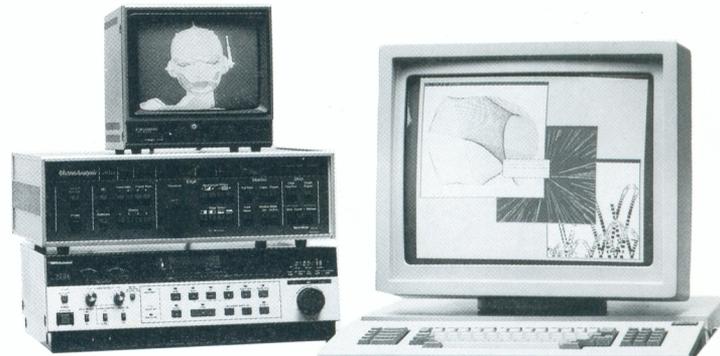
A complete stand alone system which allows an operator to accurately digitize coordinate information in successive fields

of a video signal. An RS-232C port provides for the transmission of information to an external computer for further processing. All functions of the VM-200 are controlled by a single user friendly control panel.



## Expertvision™ Motion Analysis

Completely controlled by keyboard commands, Expertvision is an integrated turnkey system for any video analysis. System includes video camera, recorder, monitor, proprietary video image processor, Expertvision software, dedicated micro-computer and a printer/plotter. Expertvision produces hardcopy data in a variety of graphic formats, as well as a permanent video record of an event.



# Eye Movement Recorder



## Nac Eyemark Recorder, Model V

Using miniature TV cameras, the Nac Eyemark V will record discreet visual points of interest of both or just one eye while recording the other eye. An infra-red light source is used, eliminating annoying light sources. Ideal for all applications to record a person's discreet visual point or for eye tracking phenomena.

Optional equipment includes real time data output in X-Y coordinates in GPIB or RS-232C and analog signal.

## Accessories

IMC offers a full complement of accessories to fulfill any photo or video system including:



## Nac Split Image Data Recorder, Model DRC-16

Designed to simultaneously record two images on a single 16mm frame. Relays front and side images to the camera aperture in a variety of split formats. "C" mount.

## Lenses

A complete selection ranging from super wide angle to super telephoto, and zoom for 16 and 35 mm cameras.



## Nac Dual Image Recording Fiber



For 16mm cameras. Attaches to any "C" mount camera and can record two images divided equally at the camera aperture.

## Model IMC-30 DC Power Pack

Fully automatic with built-in trickle charger. Supplies 250 watts at 30 volts DC for 30 minutes. Optional 1 hour quick charge option.

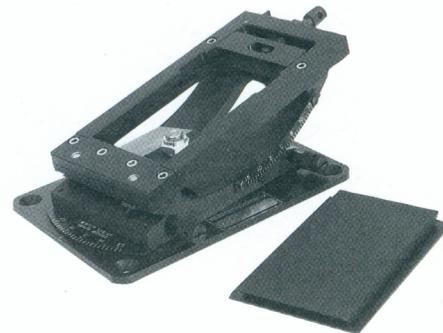


## Tracking Finders

Superimposed reticle is illuminated by ambient light and allows direct viewing for easy tracking.

## Camera Mounts

With quick connect/disconnect dovetail mounting plates.



## Tripods

A complete selection of tripods for various uses.



For further information on any of the products in this short form catalog, please call or write.

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