

# MOTION ANALYSIS MOVES INTO THE '80s

## CHECK THESE OUTSTANDING FEATURES

- 2000 Full frames per second
- Up to 12,000 pictures per second
- Live camera set-up
- Instant replay
- Choice of slow motion speeds
- Freeze frame for detailed study
- Position analysis with built-in reticle
- DATA-FRAME™ Electronic Log Book
- Cassette tape loading
- Portable
- Easy-touch control panel
- Microprocessor controlled
- Dual camera capability
- Standard video output
- Self-diagnostics
- Auxiliary data recording



Custom, miniaturized electronics and advanced packaging techniques make the analyzer console easily transportable.

Using a solid-state video sensor developed at Kodak Research Labs, the camera of the SP2000 system is able to transfer 32 lines of photographic data in parallel. These signals are FM—modu-


lated for recording along with a special timing track to keep all the tracks fully synchronized. The SP2000 system is based on linear video-recording techniques using patented Spin Physics

microgap recording heads. The recorder reaches high operating speeds in minimal time, provides long recording times, and offers a wide variety of playback modes including continuous slow motion playback and freeze frame. Special high density tape manufactured by Spin Physics, Inc., packaged in convenient cassettes, provides a perfect match for the SP2000 system. In playback, the parallel FM signals on tape are demodulated and then digitized for storage in digital buffer memory, one TV frame at a time. This stored image is then fed in NTSC format to a standard television monitor which retracts into the console for easy transport and storage, and may be raised back into viewing position by an automatic gas spring. Microprocessors are used to provide a wide range of simple, yet sophisticated controls including safeguards which render the system virtually immune to operator error. Diagnostic routines are included for troubleshooting many areas of system performance.



Use of a solid-state video sensor developed by Kodak allows a very small camera to produce up to 12,000 pictures per second.

  
MOTION ANALYSIS SYSTEM

  
SPIN PHYSICS  
A KODAK COMPANY

# THE SP2000™ MOTION ANALYSIS SYSTEM DESIGNED WITH THE USER IN MIND

For over twenty years high-speed imaging has been confined to the technologies of the 1950s and '60s. Now comes a series of breakthroughs which moves motion analysis up into the '80s. The

SP2000 system is the motion analysis system for today, combining state-of-the-art advances in video sensors, video recording, magnetic tape, and electro-mechanical design. The result? An

instrument which delivers astounding performance and is so easy to use it will quickly become an indispensable tool.

Now, for the first time, you can obtain true high speed

pictures at rates up to 12,000 per second with all the advantages of instant slow motion replay, plus the benefits of on-the-spot quantitative position measurement.

Built-in video monitor glare shield

DATA FRAME™

Slow motion image

Easy touch controls

Removable electronics card rack cover

Handy storage compartment



Built-in video viewfinder

Small, lightweight camera

Standard C-mount lens

Standard tripod mount

Cassette loading drawer

Front access to electronics

## CONDENSED SPECIFICATIONS

### CAMERA

Sensor: Solid state  
Resolution: 192 x 240 pixels  
Lens: C-mount, 12.5-75mm zoom, macro, f/1.8  
Viewfinder: 1 inch diagonal, magnifier  
Controls: Stop, record, replay, set-up  
Cable: 30 feet

### CASSETTE TAPE RECORDER

Tape speed: Up to 250 ips  
Medium: 1/2 inch magnetic tape  
Record time: 25 min @ 60 fps, 45 sec @ 2000 fps  
Rewind/fast forward: 45 sec  
Playback: 60 fps continuous or JOG-MODE™  
Freeze-frame: from buffer memory

### DISPLAY

Monitor size: 12 inch diagonal  
DATA FRAME™ Surrounds picture with time, date, elapsed time, ID #, X & Y coordinates, frame rate,

frame number, tape counter, status reports

Controls: Brightness, contrast  
NTSC format (standard video)

### CONTROL

Microprocessor: Motorola 6809  
Full frame rates: 60, 200, 500, 1000, 2000 fps  
Split frame: X2, X3, X6 any above rates  
Recorder: Auto playback, fast forward, fast rewind, stop  
Camera set-up: Live  
Dual Cameras: A or B separately, A inset into B, B inset into A, inset size and position  
Reticle: On/off, position  
Keypad: Data entry, diagnostics

### CONSOLE

Size: approx. 20 in x 20 in x 40 in  
Weight: approx. 250 lbs  
Power: 110V AC, 5 amps, 60 Hz.



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