MotionStar®

Real-Time Motion Capture

- **Wired**
- **Wireless 2**

Ascension
Technology Corporation

"We now go from capture to final rendering in 3–4 days. That used to take us 3–4 weeks!"

David Luntz, President
Z-AXIS, Ltd., San Mateo, CA

MotionStar is advanced magnetic motion capture. Fast. Accurate. Real-Time. If your project requires 3D animation for film, broadcast, computer games, simulation, or biomechanical analysis, turn to the most widely used tracker line on the planet. MotionStar offers unbeatable performance, price and support benefits. Fully integrated with animation software and host computer, MotionStar now makes an in-house mocap system affordable, reliable, and easy to use.

MotionStar Applications

- *3D Character Animation for TV, Motion Pictures & Games*
- *Live Performance Animation*
- *Biomechanical Analysis*
- *Human Factors Engineering*
- *CAD/CAM Simulation, Virtual Prototyping*
- *Virtual Reality*
- *Sports & Medical Analysis*
- *Human Performance Assessment*
- *Interactive Game Playing*
- *Rehabilitation Medicine*

courtesy of
Pillsbury Co./Windlight
Studios

With MotionStar, tracking applications are limitless.

Whether capturing the motions of a 300 lb. linebacker for a computer game or tracking the motions of an injured running back for biomechanical analysis, MotionStar precisely replicates human movement. Worldwide, animators choose MotionStar for live performance of up to six people at one time. Increasingly, they are also using MotionStar to save time and money by simulating human performance in computerized designs and prototypes.

Buying Versus Leasing…

Considering an in-house motion-capture system? MotionStar delivers unmatched productivity and cost-effective benefits:

- Collect data on your schedule — no more expensive off-site capture sessions.
- Choreograph, direct, and edit animation sequences in real-time.
- Reap extraordinary savings by recouping your data-capture investment in one or two projects.

Bobby Leach,
Tai Kwon Do Blackbelt
wearing MotionStar Wireless
courtesy of FilmEast.

The Getaway for Playstation 2
© 2003 Sony Computer Entertainment Europe's Team Soho

The Dyatlows
©2003 REN-TV

Bugs Bunny
© 1999 Warner Brothers/Medialab

Key Benefits of MotionStar and MotionStar Wireless 2:

- **New and improved DC tracking technology**. Our Advanced DC Technology with data optimization tools, such as our *Environmental Analyzer*, helps you overcome metal, noise and accuracy problems that once plagued magnetic capture systems.

- **Real-time data output**: Data is instantaneously available so characters move in real-time without post-processing delays. This lets directors change, edit and choreograph scenes on the fly and capture significant amounts of motion data in short order.

- **Multiple real-time tracking**. Instantly capture and record the motions of up to six performers at once, in real-time.

- **Independent processors** for each sensor means you get consistently fast data output while minimizing lag. Regardless of the number of sensors tracked, you always get up to 120 measurements per sensor per second.

- **6 Degrees of Freedom**: Each sensor calculates both position (x, y, z) and orientation (azimuth, elevation, and roll) for full 360 degrees coverage without the "line of sight" blocking problems of optical systems. Data is never lost. You acquire 6 data points per sensor (i.e. 20 sensors yield 120 actual data points). Our "true" data points (no triangulation required) allow fewer sensors than optical systems for faster, smoother and more reliable data flow.

- **Significantly lower investment** cost with quicker return on investment than competitive optical tracking systems.

- **Easy installation and portability**: Our *Environmental analyzer* helps you find the optimal location for installation to minimize metal and noise interference.

- **Proven long range performance:** With two Extended Range Transmitters, your motion-capture area can be significantly expanded. This allows ample room for more performers to interact over longer ranges than ever before.

- **Free interface software.** Source code available to develop your own software.

- **3rd party application software:** We're compatible with all leading software products including: Alias (Maya and Kaydara MOCAP), Softimage and 3D Studio MAX.

- **Money-back guarantee** if not completely satisfied.

- **Technicians available** to install and train new users. We'll set-up your new MotionStar and work with you to ensure that it meets your needs 100%.

- **Free lifetime customer support:** We're always available to immediately respond to your questions and requirements.

NEW

MotionStar Wireless 2. The ultimate magnetic tracker for capturing the motions of up to six performers. While retaining the high performance of our wired model, it eliminates the cables that connect the performer to the base-station. Data is sent via a wireless communications link to the base-station. Perfect for motion capture sessions that require complex movements such as twisting, flipping, spinning (fighting sequences in computer games, for example.) MotionStar Wireless allows full freedom of movement and flexibility to capture the most extreme motions.

MotionStar. Our original, affordable tracker for live performance animation. MotionStar wraps the best features of Ascension's DC magnetic technology — fast, long range tracking, in all kinds of environments — around your real world requirements. It gives you instant capture of multiple characters, motion previewing, and reliable long-term use.

Full Turn-key MoCap System.

In addition to providing front-end motion capture hardware, Ascension also offers full turn-key motion capture systems. Combined with PC workstation and Alias-Kaydara's MOCAP® software, MotionStar makes the mocap data pipeline smoother than ever — from data collection and clean-up to rendering characters for final production. You get a complete system that arrives at your studio ready to use, without technical surprises. It lets you do what you do best — Animate! Contact Ascension for more details.

"Bill Clinton"
courtesy of Modern Cartoons

Apache Training Simulator
courtesy of Safeworks, Inc.

Funky Cops
© 2003 Antefilms Productions

Lara Croft
image courtesy of Eidos Interactive/Core Design Ltd./SZM Studios

MotionStar Wireless 2

TECHNICAL

Degrees of freedom:	6: (position and orientation)
Max. number of sensors:	120 (20 per performer) plus 2 serial interface inputs for user devices
Translation range:	±10 ft in any direction, 2 transmitters max.
Angular range:	All-attitude: ±180° Azimuth & Roll, ±90° Elevation
Static Accuracy position:	0.3 inch RMS at 5 ft range, 0.6 inch RMS at 10 ft range
Static Accuracy orientation:	0.5° RMS at 5 ft range 1.0° RMS at 10 ft range
Static Resolution position:	0.03 inch at 5 ft range 0.10 inch at 10 ft range
Static Resolution orientation:	0.1° at 5 ft range 0.2° at 10 ft range
Update rate:	Up to 100 measurements/second
Outputs:	X, Y, Z position and orientation angles, rotation matrix, or quaternions
Interface:	Ethernet, RS232C
Line of sight restrictions:	None
Metallic Distortion:	Minimal; keep transmitter & sensors away from floor, walls & ceiling if metal present

PHYSICAL

Performer Mounted Components— Sensors (L x W x H) :	1.0" x 1.0" x 0.8" (attached via wires to electronics unit in backpack) Weight: 0.6 oz. per sensor without cable
Backpack:	6.9" x 5.5" x 2.0" (L x W x H), Weight: 35 oz.
Battery (L x W x H):	5.9" x 2.6" x 0.9", Weight: 19 oz.
Operating time:	Up to 2 hrs. continuous
Base Station Components— MotionStar Chassis:	18" x 19" x 10" (L x W x H), Weight: 45 lbs.
Remote Sensor Unit:	6.5" x 4.2" x 2.5" (L x W x H), Weight: 0.7 lbs.
Extended Range Controller:	9.5" x 11.5" x 4.8" (L x W x H), Weight: 6.5 lbs.
Extended Range Transmitter	12" x 12" x 12" (L x W x H), Weight: 45 lbs.
Environment:	Metal objects and stray magnetic fields in the operation volume will degrade performance. Use our *Environmental Analyzer* tool to find the optimal location for installation to minimize metal and noise interference.

MotionStar

This system also includes the Extended Range Transmitter & Controller (as shown at left).

TECHNICAL

Degrees of freedom:	6: (position and orientation)
Max. number of sensors:	108 (18 per performer)
Translation range:	±10 ft in any direction, 2 transmitters max.
Angular range:	All-attitude: ±180° Azimuth & Roll; ± 90° Elevation
Static Accuracy position:	0.3 inch RMS at 5 ft range 0.6 inch RMS at 10 ft range
Static Accuracy orientation:	0.5° RMS at 5 ft range 1.0° RMS at 10 ft range
Static Resolution position:	0.03 inch at 5 ft range 0.10 inch at 10 ft range
Static Resolution orientation:	0.1° at 5 ft range 0.2° at 10 ft range
Update rate:	Up to 120 measurements/second
Outputs:	X, Y, Z position and orientation angles, rotation matrix, or quaternions
Interface:	Ethernet, RS232C
Line of sight restrictions:	None
Metallic Distortion:	Minimal; keep transmitter & sensors away from floor, walls & ceiling if metal present

PHYSICAL

Extended Range Transmitter (L x W x H):	12" x 12" x 12", Weight: 45 lbs.
Sensor (L x W x H):	1.0" x 1.0" x 0.8" cube with 35' cables
Enclosure:	Each rack-mounted chassis houses up to 18 sensor cards with integrated power supply and interface
Environment:	Metal objects and stray magnetic fields in the operation volume will degrade performance. Use our *Environmental Analyzer* tool to find the optimal location for installation to minimize metal and noise interference.

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