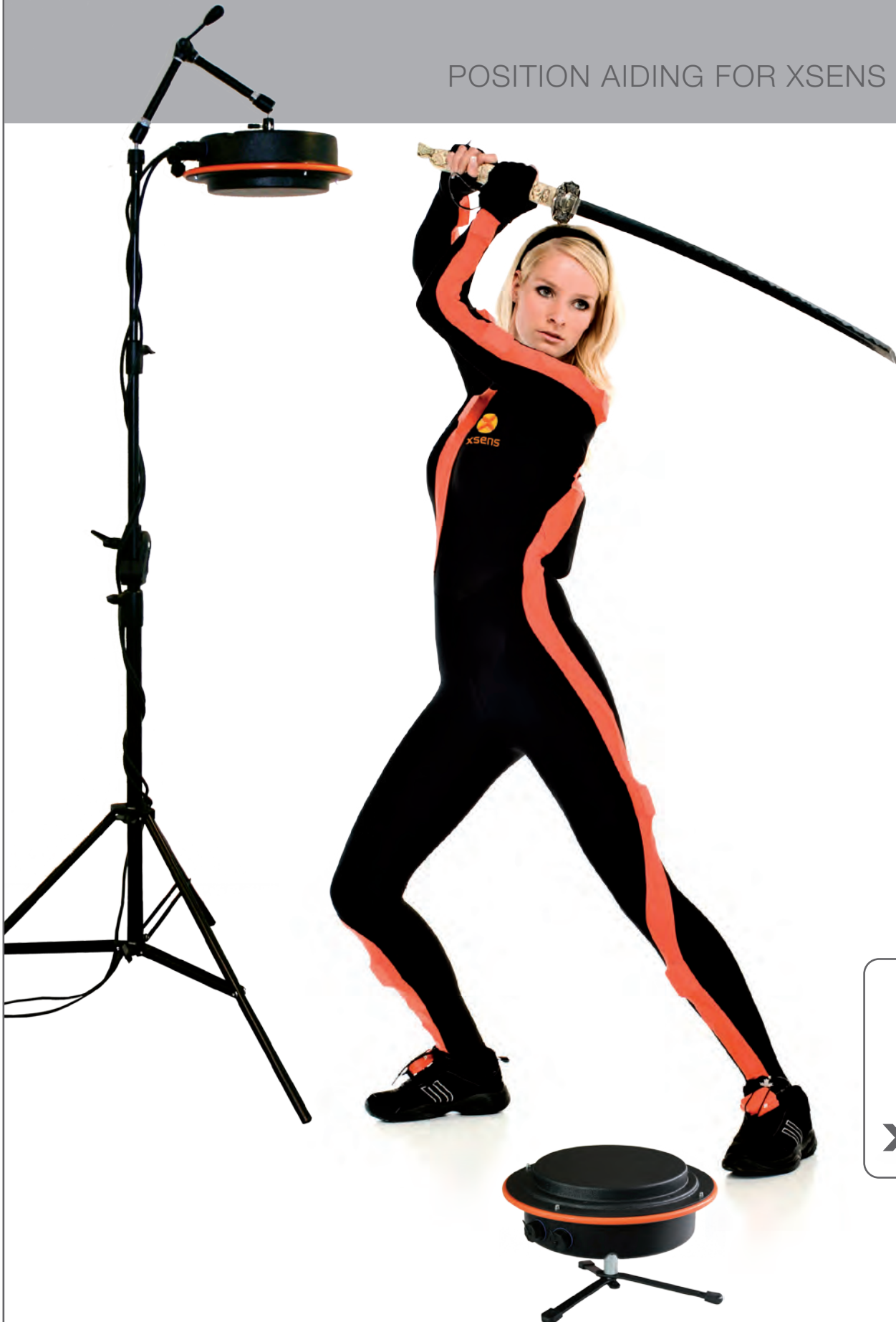


# MVN MotionGrid

POSITION AIDING FOR XSSENS MVN



**xsens**

MVN MotionGrid is a position aiding system for Xsens MVN. MotionGrid enables real-time driftless multi-person recording. It is completely portable enabling indoor and outdoor recordings. Large capture volumes of 20x20m (60x60ft) can be easily realized using the default MotionGrid configuration. With a minimal amount of hardware and quick calibration, MotionGrid is a flexible and cost effective system. MVN MotionGrid is based on UWB RF technology and therefore does not require line of sight or special lighting conditions. MotionGrid is essentially adding the equivalent of a local GPS system to Xsens' MVN full body motion capture system.

*"Speed of turnaround is crucial to us: MVN MotionGrid makes our pipeline faster and more cost efficient".*

Mike Romey, Pipeline Supervisor at Zoic Studios

## PRODUCT OVERVIEW

### MVN MotionGrid Configuration

- 9 UWB RF Readers
- 1 SD Master, sync hub
- 3 On-body Tags (for each MVN system)
- 2 UWB RF Calibration Tags
- Calibration Wand
- 5 Floor Stands
- 5 Light Stands
- 2 Transport Cases

### MVN Studio MotionGrid Module

- MotionGrid calibration workflow
- Feedback of calibration accuracy
- Real-time visualization of MotionGrid data

## APPLICATIONS

- On-set Motion Capture
- Multi person interaction
- Training & Simulation; After Action Review
- Sports Science

## FEATURES

### Capture Volume

- Large capture volume, 9 readers: >20x20m (60x60ft)
- Scalable, modular design
- Efficient use of floor space
- UWB RF signals travels through most materials

### Ease of Use

- Setup anywhere, outside, your office. No studio required
- Splash proof readers
- Clean and smooth data
- Portable; system comes in two portable cases
- FCC Certified



## TECHNICAL SPECIFICATIONS

### READER

Ports:	1 IN, 1 OUT
Power:	Over CAT5E ethernet
Range:	20m / 60ft (typical)
Dimensions:	H 155mm x W 355mm x D 355mm (6.10" x 13.97" x 13.97")
Weight:	2 Kg (4.4 lb)
Mounting:	Manfrotto 16mm (5/8") female adapter
Protection:	Splashproof



### SD MASTER

Power supply:	100-240 VAC, 50/60 Hz
Power consumption:	Max. 133W
Ports:	6 Network ports, 6 reader ports
Readers:	supports up to 18 Readers, max. 3 Readers per Reader port
Dimensions:	H 137mm x W 213mm x D 261mm (5.4" x 8.4" x 10.3")
Weight:	2.7 kg (5.9 lb)
Power cords:	EU, UK and US



### SD SWITCH

Power supply:	100-240 VAC, 50/60 Hz
Power consumption:	max. 2.4W
Ports:	8
Dimensions:	H 25mm x W 194mm x D 85mm (1.0" x 7.6" x 3.3")
Weight:	429 g (0.95 lb)
Power cords:	EU, UK and US

### SD SERVER

Power supply:	100-240 VAC, 50/60 Hz
Power consumption:	Max. 75W
Dimensions:	H 44mm x W 268mm x D 174mm (1.7" x 10.6" x 6.9")
Weight:	2.3 kg (5.07 lb)
Power cords:	EU, UK and US

### TAGS

Transmitting freq.:	10 Hz
Range:	20m
Battery life:	~1.2 year (replacement program included)
Dimensions:	H 13mm x W 36mm x D 33mm (0.5" x 1.4" x 1.3")
Weight:	22g (0.78 oz)



### Calibration WAND

Transmitting freq.:	10 Hz
Battery life:	~1.2 year (replacement program included)
Length:	307 - 749mm (12.1 - 29.5")
Weight:	110 g (3.88 oz)

### Floor Stand

Foot with 16mm (5/8") industry standard adapter spigot

### Light Stand

Light Stand consists of a boom stand and an arm with industry standard adapter spigot

### Transport Case

Features:	Watertight, Crushproof, Dust Proof, Automatic Pressure Equalization Valve
International protection:	IP67
Dimensions:	H 847mm x W 722mm x D 463mm (33.36" x 28.44" x 18.23")

### General

Operation Environment	-20°C to +55°C, non-wet
Hardware Setup Time	20 minutes

## PERFORMANCE

### 3D

Time of Arrival Accuracy:

3cm (1") standard white noise

Raw UWB 3D position accuracy:

5-8cm (2-3")

### Capture Volume

The motion capture volume of MotionGrid is larger than the required space that the readers occupy. This means that the entire room (and beyond) is the capture volume.

### No. of Readers

9 20x20m / 60x60ft

12 20x30m / 60x90ft

15 30x25m / 90x75ft

18 30x30m / 90x90ft

Mentioned capture volume has accuracy of 5-8 cm. Larger volumes are possible at the loss of accuracy.

### System Calibration

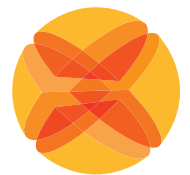
The patented calibration algorithm provides an automated process only using a fraction of the time of conventional UWB calibration routines. Calibration preparation to configure the constellation.

#### Primary Calibration

- Input height of readers using laser pointer
- Place readers in approximate position
- 3 seconds processing

#### Refinement Calibration

- Sway wand around volume
- 15 seconds processing
- Calibration accuracy feedback
- Define coordinate system

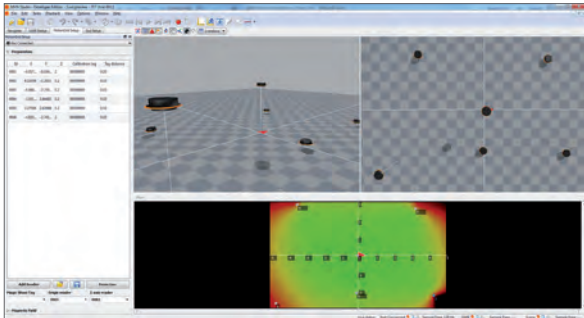


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## MOTIONGRID SOFTWARE MODULE

MotionGrid Module integrated in MVN Studio PRO

- Prepare calibration
- Accuracy feedback on calibration
- Real-time visualization of MotionGrid data
- Load and save presets
- Hardware status



## RECOMMENDED COMPUTER SYSTEM

Operating System:	Windows XP (SP2) or Windows 7
Processor:	Quad core or higher (2.5 GHz or faster) 4 GB RAM
Graphics Card:	Any graphics card with hardware acceleration for DirectX 9
USB Ports:	2x USB or hub per system

## OPTIONAL MOUNTING

Optional mounting adapters are available for a variety of fixations.

### Clamp Adapter

To mount a Reader to a truss, branch, beam, table. The clamp can hold tubes with diameter between 13 mm (0.51") and 55 mm (2.16").

### Ceiling Adapter

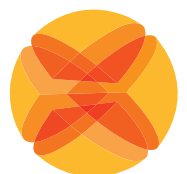
Discretely mount a Reader to a suspended ceiling.

### Plate Adapter

A Reader can be mounted to a wall, ceiling, beam with this adapter. It has eight holes for screws, allowing strong fixation.

### Screw Adapter

This adapter can be screwed into stone, wood or other objects



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## ABOUT XSSENS TECHNOLOGIES

Xsens is a leading global supplier of 3D motion tracking products based upon miniature MEMS inertial sensor technology.

Since its inception in 2000, several thousands of motion sensors and motion capture solutions have successfully been deployed in areas such as 3D character animation, rehabilitation and sports science, and robot and camera stabilization. Customers include Electronic Arts, Sony Pictures Imageworks, INAIL Prosthesis Centre, Daimler, Saab Underwater Systems, Kongsberg Defence & Aerospace and many other companies and institutes throughout the world.

Xsens' research department has created unique intellectual property in the field of multi-sensor data fusion algorithms, combining inertial sensors with aiding technologies such as GPS and RF positioning and biomechanical modeling. The company and its products have received several awards, amongst which four consecutive entries in Deloitte's ranking of fastest growing technology companies in Europe.

Xsens is headquartered in Enschede, The Netherlands and has a subsidiary, Xsens North America Inc. in Los Angeles, California, US.



KYS Technology

**錫昌科技股份有限公司**  
新北市新店區寶中路113巷3號3樓  
Tel: 02-29115233 Fax: 02-29116855

### Xsens Technologies B.V.

phone +31 88 97367 00

fax +31 88 97367 01

e-mail [info@xsens.com](mailto:info@xsens.com)

internet [www.xsens.com](http://www.xsens.com)

### Xsens North America Inc.

phone +1-866-973-6787 (toll-free)

fax +1-866-973-6701

e-mail [info@xsens.com](mailto:info@xsens.com)

internet [www.xsens.com](http://www.xsens.com)

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