

# What Do You Need to Know and Do

## Before

### Your New MoCap System Arrives

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Thank you for your order.

You will soon receive one of the most cost-effective MoCap systems in the world for capturing motions (human and prop) in real time animating and analyzing human movement.

Click here and we'll help get you ready for a successful installation:

■ **Motion Star (Tethered Model) or MotionSTAR Wireless LITE (Untethered Model)**

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#### MotionStar (Tethered Model) and MotionSTAR Wireless LITE

#### WORK SPACE REQUIREMENTS

**First and foremost, you need to find a suitable place for installing your MotionStar.**

If you do not have a "good" motion-capture area, then the tracker will not perform well. You'll be bothered by distorted and jittery data that will cost you time and money in post processing.

In addition to learning about metal and noise issues, here are some steps you can take now to get ready for the installation.

<b>Metal rules</b>	<p>Here are a few simple steps to optimize tracking performance:</p> <ul style="list-style-type: none"><li>■ Set-up Motion Star's extended range transmitter. It is a 12-inch (30.5 cm) black cube also known as the ERT. Locate the ERT and sensors so they are at least 2 feet (0.6 m) away from large metal objects.</li><li>■ Ideally the ERT should be located 2 feet (2.4 m) above the floor and at least 2 feet (0.6 m) below the ceiling, unless our <i>Environmental Analyzer</i> shows a larger distance is needed. It is a good idea to construct a wooden stage to meet these recommendations. (See stage instructions below.)</li><li>■ A good rule of thumb is to always to locate the ERT and sensors at maximum allowable distances from walls, floors, ceiling, or steel vertical support beams.</li></ul>
<b>Steps to minimize low-frequency electronic interference</b>	<p>Here are a few simple steps that you can take to optimize tracking:</p> <ul style="list-style-type: none"><li>■ Do not run power cables with high amperage under or above the stage.</li><li>■ Locate computer displays (CRT's) at least five (5) feet (1.5 m) away from the ERT to avoid space distorting imagery on the display.</li><li>■ Locate computer displays at least five (5) feet (1.5 m) away from the MotionStar's sensors. You <b>do not</b> want to run the risk of the sensors picking up noise from the</li></ul>

	<p>displays.</p> <ul style="list-style-type: none"> <li>■ If possible, use a flat panel LCD display. LCDs do not induce noise into sensor measurements.</li> </ul>
<p><b>Build a stage for best performance</b></p>	<p>Here is a list of instructions for making a stage for your motion-capture system:</p> <ul style="list-style-type: none"> <li>■ Make it out of wood; 2 ft (0.6 m) to 4 ft (1.2 m) high.</li> <li>■ Use 300-series stainless steel or aluminum nails and bolts.</li> <li>■ Avoid the use of steel hangers and fasteners.</li> <li>■ Support the stage floor on wooden beams and supports – avoid steel or aluminum devices.</li> <li>■ Make the stage railing out of wood not metal.</li> <li>■ Minimize metal used in stage lighting that might be directly overhead the capture area.</li> <li>■ Keep large metal light supports and metal reflectors at least 8 feet (2.4 m) above the space transmitter. If that is not possible, move these devices to the side of the stage.</li> <li>■ For more information on motion-capture area requirements, please see the Application Note in the back of your User’s Manual.</li> </ul>
<p><b>Cabling MotionStar to your host computer</b></p>	<p>Run the Motion Star on a separate network. Network traffic can cause dropped frames and lost data.</p> <p>For best performance, directly connect the MotionStar to your host animation computer. Use either a RJ45 crossover cable or a dedicated 10/100BaseT Ethernet switch.</p> <p>If you must connect your host animation computer to a local network, install a second Ethernet adapter to your animation computer. In this way, the network will remain separated from the MoCap work.</p> <p>Connect your MotionStar system with an Ethernet cable to your host computer. In most cases, you will use a standard CAT5 RJ45 cable. Note that some old host animation computers may require a different style Ethernet connector</p> <p>If your network uses a BNC–type barrel connector then you will need to use a connector of that type.</p>
<p><b>Setting up your Ethernet IP address</b></p>	<p>Before shipment, we can set an Ethernet IP address for you.</p> <p>If you have a preferred IP address, let us know on the attached Checklist. In order for MotionStar and your host computer to see one another over a network, it is best to use an address that is within the same range. For example, if your host computer has an IP address of 192.168.0.5 then select an address for the MotionStar of 192.168.0.X where X is an available address between 1 and 254.</p> <p>Setting a different subnet mask on your Animation PC can use more addressing space. The IP address and subnet mask of the MotionStar system can be changed after installation in the c:\base\base.ini and c:\pctcp\pctcp.ini files, but a monitor and keyboard are required.</p>

<p><b>Compatible animation software</b></p>	<p>If you would like to collect raw data from the MotionStar system, we recommend piping the output of the BNSample application to a file. The BNSample application is available on our FTP site:  <a href="ftp://ftp.ascension-tech.com/Ethernet_Motionstar/BNSAMPLE/">ftp://ftp.ascension-tech.com/Ethernet_Motionstar/BNSAMPLE/</a></p> <p>If you are using any of the following applications, no action is needed. These programs have built in drivers for MotionStar:</p> <ul style="list-style-type: none"> <li>■ <b>Autodesk:</b> <i>MotionBuilder</i></li> <li>■ <b>Innovative Sports Training:</b> <i>MotionMonitor</i></li> </ul>
<p><b>Attaching sensors to your performer(s)</b></p>	<p>Sensors must be snugly attached to your performer. Taping sensors in position does not work well. Mounting locations usually include: head, spine, arms, shoulders, hips, legs, and feet.</p> <p>The best approach is to purchase our “Basic” mounting kit for the tethered MotionStar model. For motion Star Wireless LITE choose either the “Basic” Mounting kit or our cyber suite. If you have not ordered it, consider doing so now so you will have it available when your tracker arrives. For a parts list, request our Accessory Price List and a quote.</p>
<p><b>Transmitter stand</b></p>	<p>The ERT is a 12 X 12 X 12 inch cube and weights 45 pounds (20.4 kg). Your performer must confine his movements to within 10 X 10 foot area. For this reason, the ERT is usually centrally located in the capture area.</p> <p>For greater range, you can also set up a stage with two ERTs. This will enable you to increase your stage to 10 feet X 12 feet or slightly larger, depending on your requirements.</p> <p>In all cases, your ERT should be mounted above the floor or beneath a stage. Never place it on the floor or near a wall or ceiling. It may contain ferrous metal that will distort measurements.</p> <p>The best mounting option for an ERT is to place it on an ERT pedestal, which is either 30 inches (.7 m) or 42 inches (1.1 m) high. It is available on our Accessory Price list. If you have not done so already, order it now.</p>
<p><b>Sensor cable lengths for MotionStar Wireless<sup>LITE</sup></b></p>	<p>To minimize the amount of wire on the performer's body, the MotionStar Wireless LITE sensor cables are available in three lengths: 2.5, 3.5 and 5.0 feet.</p> <p>The right mixture of cable lengths depends on where you will attach the sensors on the performer's body, and the size of your performer.</p> <p>Identify the body parts onto which sensors will be mounted, so we can ship the correct cable lengths to you.</p> <p>If you are uncertain of your cable requirements, you can simply order our "default" configuration. It provides cable lengths designed to fit an "average-sized" person. Default recommended cable lengths are as follows:</p> <ul style="list-style-type: none"> <li>■ Hands, wrists, ankles, feet, toes - 5 feet (1.5 m)</li> <li>■ Elbows, knees, head, chest - 3.5 feet (1.1 m)</li> <li>■ Shoulders, root (hips), back – 2.5 feet (0.7 m)</li> </ul>

**MotionStar Installation Checklist**  
**Email to: [jharrington@ascension-tech.com](mailto:jharrington@ascension-tech.com)**  
**Or Fax to: 802-893-6659**

Please email or fax back this form prior to your installation delivery date. We must receive this completed form at least one day before the scheduled ship date. Some of the information is essential to properly configure your unit. Other items will help us ensure that you have all the necessary support to quickly get your unit operational. (Type information or print clearly in black ink)

1. **Company Name & Address:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
2. **Main Contact Person:** \_\_\_\_\_  
**E-mail Address:** \_\_\_\_\_  
**Phone Number:** \_\_\_\_\_
3. **Technical Contact Person:** \_\_\_\_\_  
**Phone Number:** \_\_\_\_\_  
**E-mail Address:** \_\_\_\_\_
4. **Host Computer: (SGI / PC / Other) and Operating System:** \_\_\_\_\_  
\_\_\_\_\_
5. **Interface: (Ethernet, RS-232, etc.)** \_\_\_\_\_  
\_\_\_\_\_
6. **Motion Capture Software and Software Version Number:** \_\_\_\_\_  
\_\_\_\_\_

**7. Description of Motion Capture Area:**

- How large is the room in which you will be placing our equipment: (L x W x H)?** \_\_\_\_\_
- How large of a motion capture area are you trying to create (This should be smaller than the room you are trying to work in)?** \_\_\_\_\_
- Is your planned motion capture area in a high rise building? If yes, then what floor will you be located on (1st, 5th, basement, etc.)?** \_\_\_\_\_
- Are there any metal vents, air conditioning ducts, or large metal pipes in the ceiling?** \_\_\_\_\_  
\_\_\_\_\_
- Is there any metal rebar or large steel girders in the floor?** \_\_\_\_\_
- Are there metal studs in the walls?** \_\_\_\_\_

■ Will there be any large computers near your motion capture area? \_\_\_\_\_

\_\_\_\_\_

■ Will there be any large pieces of equipment near your motion capture area (i.e., power transformers, power generators, circuit breaker boxes, treadmill, etc.)?

\_\_\_\_\_

\_\_\_\_\_

■ Are there CRTs and computers nearby? \_\_\_\_\_

**8. Sensor Mount:**

■ Do you have a plan for mounting sensors on your performer? \_\_\_\_\_

\_\_\_\_\_

■ Can the attachments on your suit accommodate the dimensions of our sensors?  
(1.25 by 1.25 by .75 inches per sensor)

\_\_\_\_\_

■ Where will you mount sensors on your performer? (Name body parts)

\_\_\_\_\_

9. Do you have a non-metallic stand that can accommodate our transmitter (ERT)?  
(It must be able to hold 45 lbs., and be at least 18 inch by 18 inch by 48 inch high)

\_\_\_\_\_

10. What is the power source in your country? [ ] 10V or [ ] 220V.

**11. Motion Capture Issue:**

■ What type of motions do you intend to capture with MotionStar? \_\_\_\_\_

■ Will any of the motions be extremely fast, such as kickboxing, or swing objects or rackets at high accelerations? \_\_\_\_\_

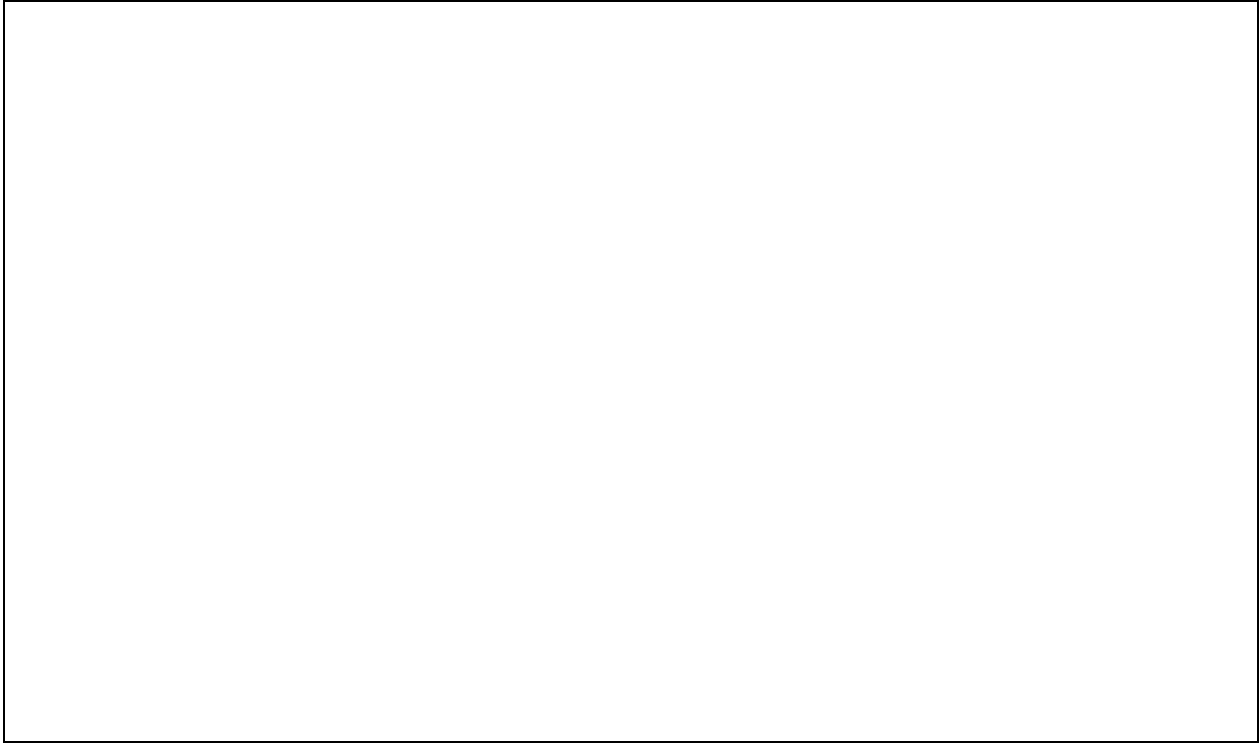
■ Do you intend to track the motions of props? If so, please identify \_\_\_\_\_

**12. For MotionStar Wireless users only:**

■ **Cable lengths:** You may choose 3 separate cable lengths for your sensors. Lengths are 2.5 ft, 3.5 ft, and 5 ft. Sensor lengths are determined by the distance from our Electronics Module (located on your lower back) to the sensor heads positioned on your head, hands, arms, legs, feet, etc. Please let us know quantities by length: \_\_\_\_ 2.5 ft \_\_\_\_ 3.5 ft \_\_\_\_ 5 ft.

■ If you are unsure of requirements, check here \_\_\_\_\_ (default settings for cable lengths).

13. Please give us a rough sketch of your motion capture area. (Be sure to show distances to nearby metallic objects).



Please return Checklist pages 4, 5 and 6 to us.



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