

FSM-5 Full Spherical Mount
DC-18 GHz.



Installation and Configuration Guide
x100 Series Positioners

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P.O. box 2037 Diamond Springs, CA 95619
Tel: (530)626-3857 Fax: (530)626-0495
support@diamondeng.net
<http://www.diamondeng.net>

System Introduction

The FSM-5 Full Spherical Mount enables your x100 series positioner to perform un-obstructed, phase centered spherical measurements of small to medium sized antennas. This guide will cover the installation of the FSM onto your positioner and the configuration of the DAMS Antenna Measurement Studio software.

When the FSM is fully installed and configured the Azimuth Axis of your x100 positioner will be the Elevation axis and the FSM mount will be the new Azimuth Axis.

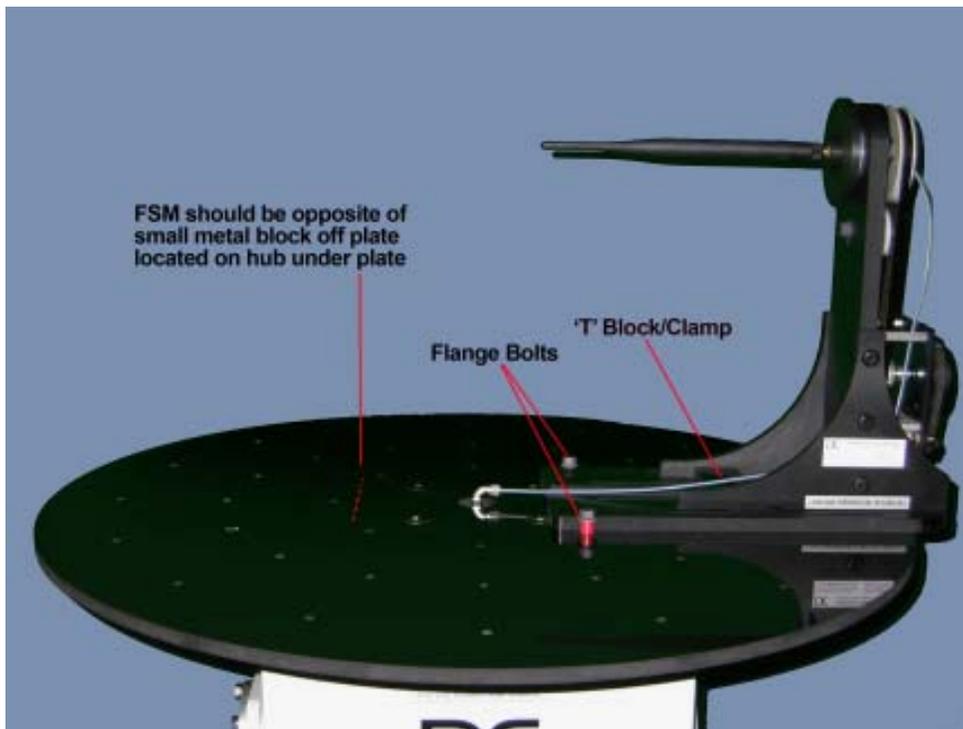
DAMS x100 series FSM package contents.

- FSM-5 DC-18 GHz. Full Spherical Mount
- USB controller
- 24V power supply
- USB cable
- FSM control cable
- Hardware for mounting FSM to x100 series mounting plates.
- Precision 90 deg. SMA elbow.
- AUT mounting hardware
- Tools



Hardware Setup and Mounting

1. Unpack the included parts and connect the power supply to the blue control box.
2. Ensure the x100 series positioner is level and the circular mounting plate is attached.
3. Position the FSM onto the 24" plate so that the back of the FSM mount is opposite of the square metal plate on the x100 series Hub. (Fig1).
4. Fasten the FSM to the plate in the desired position using the included hardware
5. Connect the Blue SMA cable to the top of the x100 positioner.
6. Connect the Included cable from the back of the FSM mount to the horizontal port located on the blue control box.



FSM Attachment



FSM Control Cable



Controller Connection

FSM Mounting Examples

To make proper spherical measurement you must phase center the antenna over the rotation axis. The examples below show the various positions that can be configured. each configuration below allows a range of movement allowing precise centering.

CENTER MOUNT

This Configuration is shown using the T shaped block in addition to the side flange bolts to secure the FSM to the plate. This position is ideal for very short antennas.



MID MOUNT

This Configuration also uses the T shaped block in addition to the side flange bolts to secure the FSM to the plate. This position provides a fairly wide centering range.



EDGE MOUNT

This Configuration uses only the T block and requires the use of an SMA Extension cable. For very tall antennas it may be necessary to use a support mechanism located at the opposite side of the turntable.



Installing the Controller and Software

Controller Installation- DAMS x100 Series

1. Ensure the x100 positioner is already installed and connected.
2. Using device manager (control panel>system>hardware tab>device manager) note which COM port the x100 positioner is currently configured on.
3. Connect the USB cable from the Controller to the PC, the PC will say it found new hardware.
4. **IMPORTANT** – do not check windows update for latest drivers, select “not at this time” then press next
5. choose a location for windows to look for the driver, you can specify c:\dams\driver (windows will say the driver is not certified, this is OK), press next and the installation should finish.
6. windows will find new hardware again , repeat steps 4 and 5.
7. return to the device manager (step 2) and note the new com port that has appeared.

SOFTWARE CONFIGURATION- DAMS x100 Series

*** if you are upgrading your system follow the upgrade instructions below before proceeding**

1. Start the DAMS Software and click “positioner settings”
2. place a checkmark in the “Full Spherical Mount” box , you will see a place to select a COM port appear in the x100 settings area, select the port you noted from device manager.
3. Press the “Save” button then press “QUIT” to exit and save your changes.

SOFTWARE UPGRADE – When upgrading an existing x100 installation with the FSM

1. Make a backup of c:\dams before continuing.
2. Install the CD that was included with the FSM
3. Start the software and press the “import configuration” button to import your old configuration including license key.
4. If your old licens was “Standard” press the “enter license key” button to enter the license key found on the White CD envelope that was shipped to you with the FSM , it should be a “Professional License”
5. Restart the DAMS software it should now be at the latest revision and show that a professional license key is in use.

Operating the FSM

As noted earlier in this guide the FSM mount is now the Azimuth axis of the measurement system and the turntable portion of the positioner is the Elevation Axis. General operation of the system and making measurements is nearly identical to the standard x100 system. The minor differences in operation are described below.

90 Degree turntable offset - When the DAMS software is configured for the FSM mount you will notice the x100 turntable's 0 position is now 90 degrees CW from the original 0 position, this is to allow the FSM to travel 90 degrees in both directions from the 0 degrees elevation. If the mounting of the FSM is correct it will resemble the images at the bottom of this page.

Zeroing the Axis- x100 positioners have a static 0 deg. point that does not change due to hardware limits, the FSM mount does NOT have limitations therefore you can press the "set zero position" in the software and the current FSM position will become 0 Degrees AZ.

Resolution- x100 positioners have accuracies of .10 Deg/Meas and .25 Deg/Meas. the FSM mount has a resolution of .125 deg/step with .0625 possible by enabling half/stepping

FSM Position Examples

The images below depict proper positioning of the system with the camera location as the Reference antenna location.



FSM@ -90 Deg. Elevation



FSM@ 0 Deg. Elevation



FSM@ 90 Deg. Elevation

Troubleshooting

1. Check all connections and ensure the controller and power supply are on.
2. Be sure you have the FSM selected, COM port set, and "Move and Measure" selected in the software.
3. Check to see that you have 2 DAMS related com ports showing in Device Manager

If you still cannot resolve the issue, please contact us using one of the methods listed below

E-Mail: Support@diamondeng.net

Phone: (530)626-3857

Fax: (530)626-3857