

Nodal Ninja Ultimate M2 Gimbal Pano Head With Rotator D8II or D16II

FANOTECH
Nodal Ninja

Quick Reference Guide

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Support: www.nodalninja.com/forum
Tutorials: www.youtube.com/nodalninja
Store: www.nodalninja.com



Nodal Ninja Ultimate M2 is a new addition to the Nodal Ninja Ultimate Modular System. It fills in the product line for photographers specializing in high resolution panoramas or mosaics. The M2 supports lenses up to 3kgs. Its friction adjustable and full bearing loaded upper rotator make it serve as a good gimbal head for smooth rotation of heavy telephoto lenses at their center of gravity. Both of its upper and lower rotators have a **Start** and an **End** tab for effective composition and shooting. The lower rotator incorporates precise detent click stops as small as 2 degrees with Rotator D8 II. The upper rotator can be upgraded (optional) with precise positive stops down to 1.5° intervals.

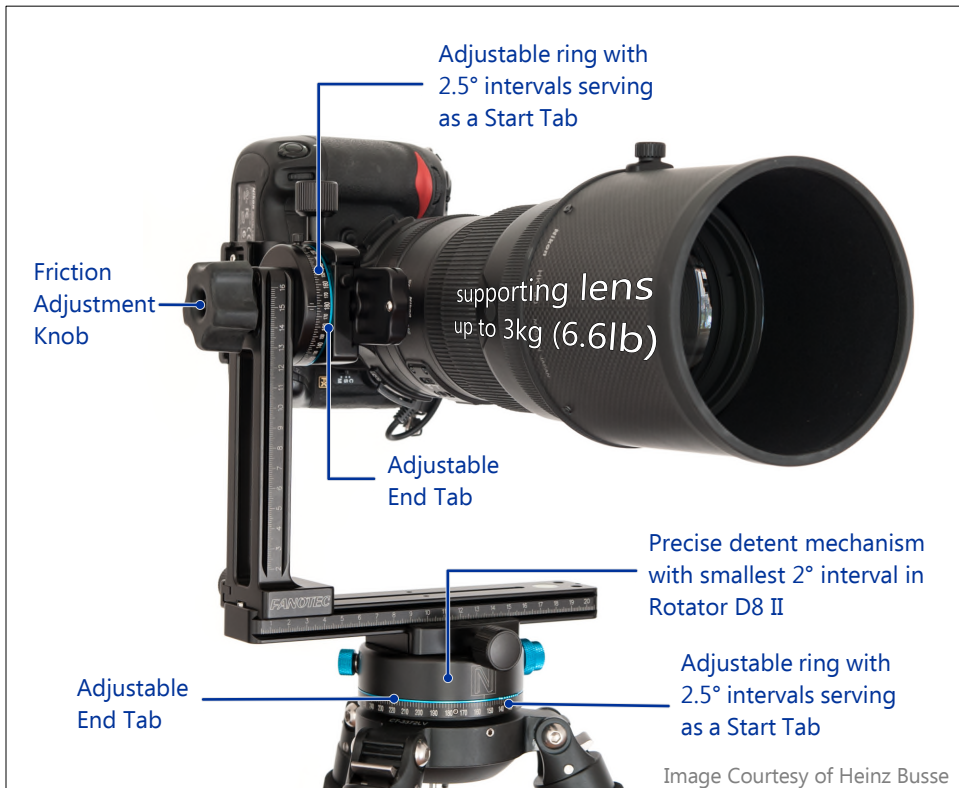
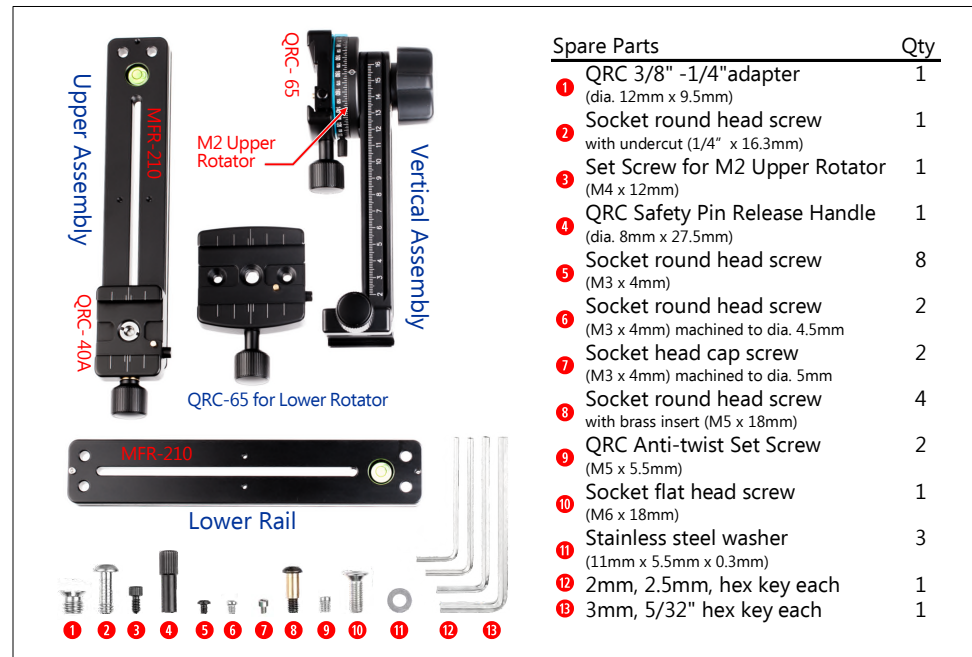


Image Courtesy of Heinz Busse

Package Contents of Nodal Ninja Ultimate M2



Depending on resellers, the package may come pre-assembled in a hard case with or without a lower rotator. A Nodal Ninja Ultimate M2 No Lower Rotator package includes a QRC-65, an MFR-210, an MFVR-170C with M2 Upper Rotator and QRC-65 installed, and an MFR-210 with QRC-40A installed. The spare parts also include screws for mounting optional accessories. The exact content of spare items may vary with time. Note that an Arca Swiss compatible camera mounting plate (optional) is needed if a lens ring mount is not used.

Setting Up Nodal Ninja Ultimate M2

The M2, being a modular design, can be assembled into several different configurations or combinations apart from the default package. Users can even mix parts and accessories from third parties. In this guide we will focus on the default package with Rotator D8 II or D16 II and instruction for building an M2 from individual parts.

Installing QRC-65 to Rotator D8 II or D16 II



The QRC-65 in the No Lower Rotator Package has 2 anti-twisting screws installed. Align and place QRC to the lower rotator in your preferred orientation. Normally the QR handle should point to the back to reduce nadir footprint. For Rotator D8 II, the QR handle should point away from the detent plunger sockets to avoid interference of knob and plungers.



Install an M6x18mm flat head screw at the center socket of the QR clamp. For Rotator D8 II, install 2 M5x14mm flat head screws (from RD8 II) at the outside sockets to increase stability when heavier super telephoto lenses are used. With the lower rotator installed, your M2 is now ready for use.

Setting Up an M2 Upper Rotator

Skip this part if you have a preassembled M2.

The M2 upper rotator has many loose parts and can be difficult to install for unskilled users. It is therefore taped to keep the loose parts in proper positions in the standalone package. Jump to **Step 3** if the tapes are still in tact.



Loosen the set screw on the rotator. Ensure it is pointing away from side with numerous notches. Ensure the wave spring is inside its groove. Otherwise, use a toothpick or the like to position it inside.



Place the blue End Tab on the rotator. Press it against the spring. It should be flush with the rotator surface. Use a long adhesive tape to bind the End tab and the rotator tightly. Ensure the tape is not hiding any sockets.



Install 2 anti-twist screws on QRC-65. Point the QRC handle in the direction of the set screw. Align its countersinks to two M5 sockets. Place QRC-65 on the rotator.



Install 2 M5 flat head screws. Tighten them slightly. Peel the adhesive tape and pull it out from the rotator. Loosen the screw a bit if the tape cannot be pulled out. Tighten the screws fully after removing the tapes.



Hold the rotator so that its tightening knob is pointing downwards. Carefully remove the knob by turning clockwise. Try best to keep the plastic ribbon intact. Jump to **Step 7** if the ribbon is intact.



If bearing and disc spring washer in the rotator fall apart, reassemble them. Firstly, place the disc spring washer on the knob with concave side facing up. Then place the bearing on top of the washer.



Install the rotator on MFVR-170C vertical rail. Ensure the triangle reference mark is pointing to the top of rail. Tighten 4 M4x25mm flat head screws with 2.5mm hex key.



With the screw pointing down, carefully tighten the knob, while keeping the bearing in order. Remove the ribbon if there is any.



Finally, install the captive screw to finished the installation. Optionally, install the QRC 3/8"-1/4" adapter on central socket of QRC-65 to make it look better.

Setting Up Lower Rail and Vertical Assembly



Nodal Ninja Ultimate M2 is fully quick release enabled with registration stops for quick and reproducible setup and breakdown. Ensure a machined round head screw (dia. 4.5mm) is installed on the MFR-210 lower rail at the end opposite to the bubble level and at the outer socket of MFVR-170C vertical rail.



Tighten the lower rotator on the tripod. Tighten the lower rail to QRC. Place the vertical rail to the lower rail at the end near the stop screw. Slide it against the stop screw. Tighten the vertical rail. This ensures the vertical rail is set in the same position each time and the lower rail setting is solely determined by the reading against the lower rotator QRC.

Setting the Upper Rail Assembly



Install a 3/8"-1/4" adapter on QRC-40A. Install an anti-twist screw on the socket indicated.



Place a stainless steel washer on the 1/4" screw. Ensure its face with smoother edge will be facing the rail. Install the screw on the MFR-210 rail. Slide it to the end opposite to the bubble level.



Install QRC-40A to MFR-210. Ensure the anti-twist screw is aligned to the groove of the rail. Tighten the screw slightly. Slide the QRC-40A to the end of rail to ensure consistent positioning. Tighten the screw fully.



Mount the MFR-210 (with QRC-40A installed) on upper rotator QRC-65. Mount the camera with camera plate installed on QRC-40A. Slide the camera along QRC-40A so that the lens axis is in line with the upper rail. Fanotec camera plates have markings to make for easier alignment of camera plate.

Setting Up NPP for Lower Rail and Upper Rail

To ensure error free stitching in the final image sets, the lens must be rotated around its entrance pupil at the upper and lower rotators. This is done by adjusting the lower rail and upper rail back and forth relative to the rotator QR clamps until parallax between adjoining images is minimized. The readings of the rails at this point are the NPP (No Parallax Point) settings of M2. There are many tutorials on the internet describing these procedures in details.



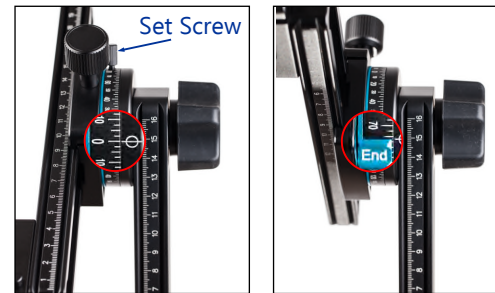
Here are a couple helpful tutorials on finding the NPP of a lens (special thanks to Smooth and John Houghton for providing these links):

<http://j.mp/19g3m8x>

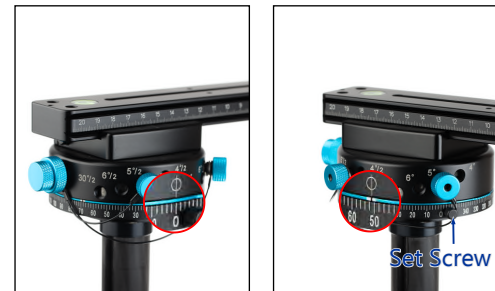
<http://www.johnhpanos.com/epcalib.htm>

Using the Start and End Tabs of Rotators

The **Start** and the **End** tabs help to compose the multi-row mosaics by setting up their boundaries before taking the image sequences. This avoids taking any redundant images and hence minimizes the time of image capture. This is especially important when a large number of images are to be taken in changing light conditions. Note that the tabs just indicate the boundaries. One can also begin at "End" tab and stop at "Start" tab.



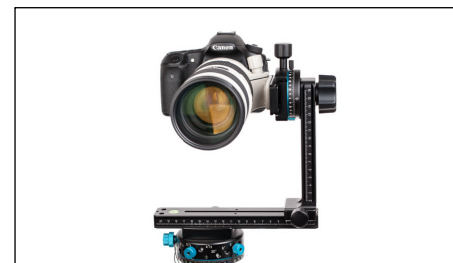
Point the lens to include the upmost/bottommost region of interest. Loosen the set screw at the upper rotator index ring, rotate to align the 0° mark to the reference mark. Tighten the set screw. Point the lens to include the bottommost/ upmost region of interest. Grab the **End** tab ring, rotate to align its top/bottom edge to the reference mark.



Point the lens to include the leftmost/rightmost region of interest. Loosen the set screw at the lower rotator index ring, rotate to align the 0° mark to the reference mark. Tighten the set screw. Point the lens to include the rightmost/ leftmost region of interest. Grab the **End** tab ring, rotate to align its black line to the reference mark.

Now, the composition of the mosaic is set. The mosaics are most quickly taken row by row in a zig zag manner. Point the lens to one of the four corners set by the tabs. Take a row of images based on a predetermined interval until the lower rotator reaches the boundary set by the tab. Point the lens up/down by one row based on predetermined interval. Reverse the rotation of lower rotator to take another row. Repeat the procedure until the upper rotator reaches its boundary set by the tab. Take the last row to complete the image capture

Mounting a Lens Ring or Lens Plate to the Vertical Assembly



If a Fanotec lens ring or a lens with collar and compatible plate is used, the lens (and camera) can be mounted to the upper rotator QRC-65 directly.

Using M2 as a Gimbal Head

For fluid and effortless rotation of heavy lenses, the lens and camera must be rotated about their center of gravity. For this reason, these lenses generally have lens collar tripod mount near the center of gravity for direct mounting on tripod. M2 allows mounting lens via the collar with an Arca Swiss compatible lens plate installed. M2 allows full adjustment of the position of lens and camera relative to the axes of rotation. Its smooth upper rotator movement with adjustable friction control makes it a great gimbal head.



Setup M2 as a pano head. Ignore the rail settings. Upper rail is not needed if the lens is collared. Install a lens plate on the collar. Fanotec MFR-160/170/210 can also be used as lens plate. Anti-twisting bar (sold separately) is needed if the collar only has one socket for mounting.



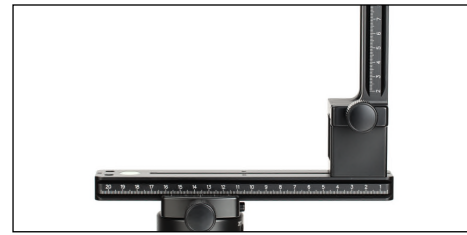
Loosen the upper rotator tension knob slightly so that the rotator can be rotated easily. Mount the lens (with camera attached) in the rotator clamp via the collar. Slide the lens back and forth to distribute the weight evenly. The lens will feel balanced when the load is evenly distributed. Lock the QR clamp. Tighten the rotator tension knob.



While supporting the lens with one hand, loosen the lower rotator clamp. Slide the lower rail left or right so that the lens axis is directly above the lower rotator. Lock the clamp. Now the camera and lens will be rotating about their center of gravity. The rotation will be smooth and effortless. Use upper rotator tension knob to adjust the friction of upper rotator.

Adding Vertical Rail Extender or Nadir Adapter

The vertical rail is kept short to enhance stability of the setup for heavy lens and camera, and to allow for using the nadir adapter. For some big lenses with entrance pupil far away from camera, full rotation of camera on the upper rotator may not be possible. A optional vertical extender is needed to overcome this limitation. This can be the light weight extender for M1/2 or the more versatile nadir adapter. Note that if the lens has a wide enough angle of view, it is still possible to cover the full view of a spherical panorama without using the extender.



Both the extender and nadir adapter add 40mm to the vertical clearance, allowing full rotation of most lenses used for making spherical panoramas. See their (coming) reference guides for installation.

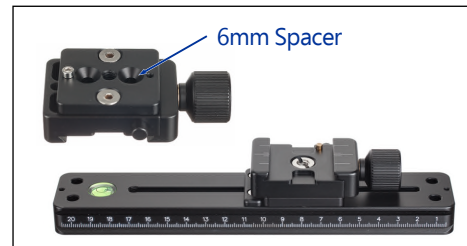


Nadir adapter allows user to quickly swing out the lens and camera for an unobstructed nadir view. See its (coming) reference guides for instruction.

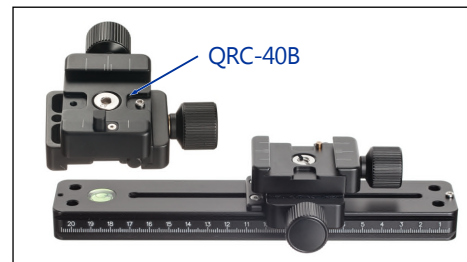
Sliding Camera and Lens on Upper Rail



The camera is mounted to QRC-40A at the end of upper rail. When a fisheye lens is used, the upper rail may block significant amount of angle of view of lens. To overcome this issue, a lens ring mount, which is mounted on the upper rotator QR clamp directly, can be used. Alternatively a spacer can be mounted to the QRC-40A to allow it slide along the upper rail.



A 6mm thick spacer mounted to QRC-40A. A low cost solution to slide the QRC on the rail. See its (coming) reference guide for installation.



A QRC-40B mounted to QRC-40A. A convenient way to slide the QRC back and forth on the rail. See its (coming) reference guide for installation.