

## Agno's Mrotator TDS2 – Canon 20d/ Sigma 8mm Lens

Test Report: July 2006

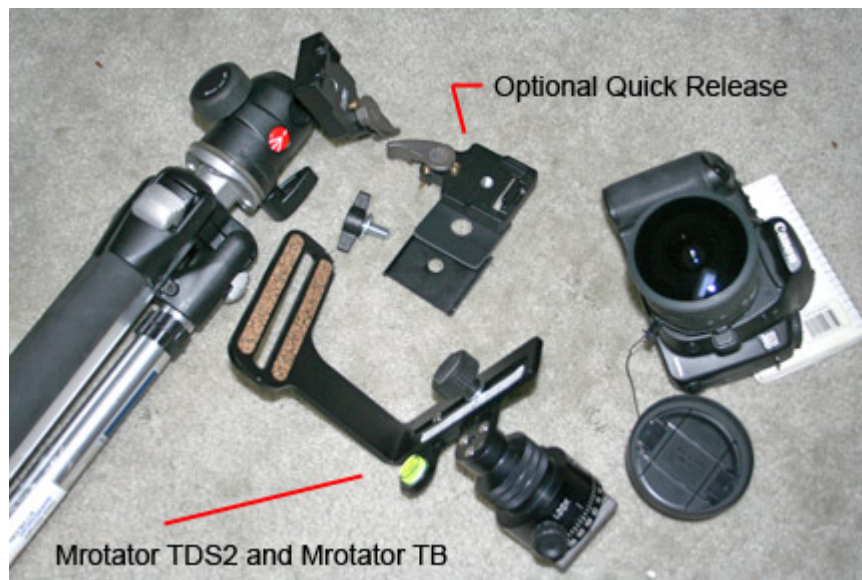
**Introduction:** The L shaped panorama bracket and rotator base are designed to accommodate most types of film and digital cameras. It provides a method for capturing single or multiple row images suitable for creating cylindrical, cubic and spherical panoramic image. This report uses the Canon 20d and Sigma 8mm fisheye lens.

**Specifications: Agno's Mrotator TDS2 Kit.** The kit includes Mrotator TB rotator base, L bracket and an optional camera standard Manfrotto quick change rectangle adapter plate. The optional adapter plate is similar to Manfrotto product nr. 3299.



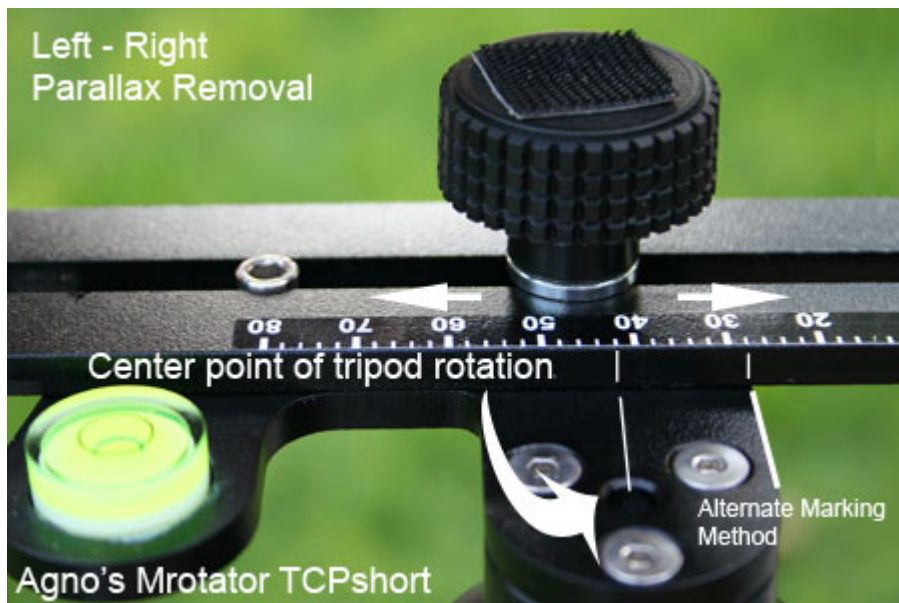
Together the Base \* and bracket are 17cm wide x 13cm deep (arm piece) x 29cm high (7" w x 5" d x 11" h). The combined rotator and bracket weight is 1.44kg or 3.17 lbs. The product has black knobs and black protective paint finish. The L bracket and arm have index scales. The bracket base has a 17mm diameter round yellow/green spirit level.

\* The Mrotator TB base is 78mm high x 60mm diameter (3" high x 2 1/4" diameter) and is .43kg or 1 lb.



**Design Features:** The Mrotator TDS2 can be separated into 2 pieces allowing for easy travel storage. All the alignment control knobs are within easy reach while standing from behind. Location of the control knobs and spirit level (if mounted on the back side) are easy to read and understand.

**Setup Procedure:** Place the optional Manfrotto 488RC2 ball head on a Manfrotto 3001d tripod. Place the assembled Mrotator TDS2 on the ball head quick release plate.



**Removing left/right parallax.** Parallax is the apparent change in the position of an object that results in change in the point of view. It is necessary to align the camera on the panorama head to view the object from the exact same position. Rotate the camera so the lens points directly DOWN. Loosen the Mrotator TDS2 horizontal bracket knob (see above photo) and gently slide the bracket until the camera's view finder "Center" focus box is lined up directly over the top of the tripod's center rotation point. We found the lens center at **42\*** on the head horizon scale. See the alternate marking method **28\***. This should eliminate parallax.



**Find Entrance Pupil [Nodal Point] location. No Parallax Point (NPP)**

The nodal point (NPP) location is a function of the lens and not the camera. It is the position inside the lens where the incoming image is inverted and projected back to the film plane or sensor.

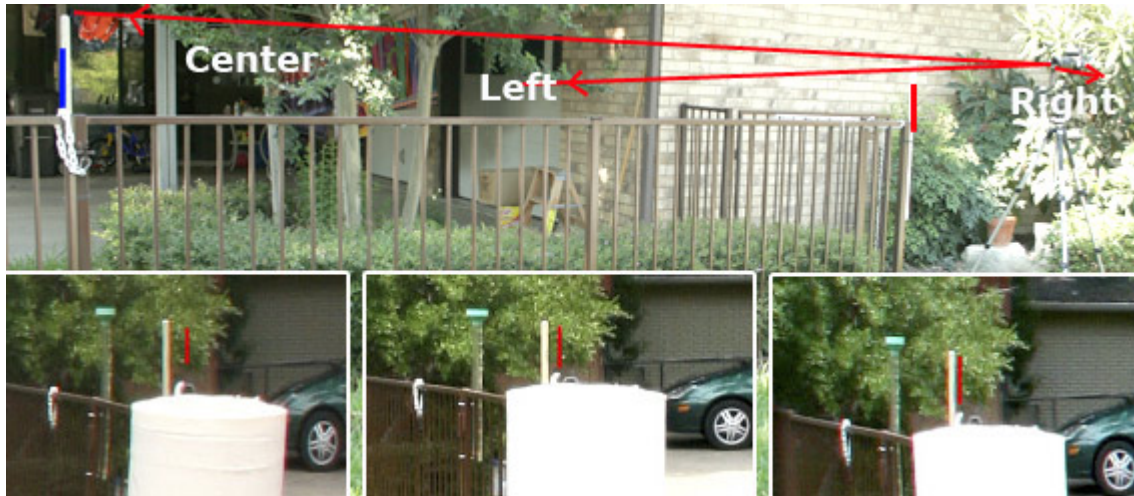
We found the Sigma 8mm NPP to be at the gold ring marker. Place the gold ring directly over the top of the tripod's rotation point. We found that fisheye lenses typically have more than 1 NPP, depending on the closest object in front of the lens. The gold ring is a good starting location.

The Mrotator TDS2 we received for evaluation did not have scale markings so we supplied our own stick on paper scale labels.

**\*Scale markings shown represent a good starting point.**

**(Finding Entrance Pupil [Nodal Point] location continued)**

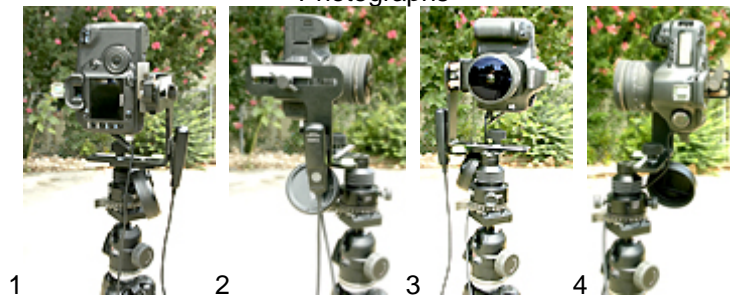
After you have put the gold ring over the tripod center then set the precision (NPP) nodal point using the photo's below. We used a block of 6 x 6" foam. We put 2 white wires in opposite corners. The two white sticks should not appear move when you rotate the camera about 45° left and right.



**Taking the Panorama Photos**

Using the spirit level, setup the tripod and Mrotator TDS2 bracket. Now it is time to take your images. Take 4 images at 90° intervals. The Canon 20d does not have crop factor and data does fit on the sensor.

Photographs



Stitch the 4 images with your favorite stitching software. Then while viewing it on screen tilt down.

The tripod cap should look like this:



The Mrotator TDS2 design keeps all the bracket parts outside the Sigma 8mm 180° lens viewing area. This pan head has a very small footprint.

If your pan head appears like in the photo above, you have done a good job in locating the Entrance Pupil or Nodal point. Your stitching should be near perfect.

The Mrotator TDS2 does **not** tilt 90° up (zenith) or down. **Suggest using the Mrotator TCPshort.**





**Finished panorama**

This finished panorama contains hard visual lines. A good correct alignment test is hard line convergence in the top 10%, mid 60 % of the image. Precision Mrotator TDS2 panorama head with correct alignment will produce an excellent result.

**Our testing equipment:**

**Camera:** Canon 20d

**Compact Flash Card:** 1 GB Lexar Media Professional 80x WA (also had 256mb compact flash card)

**Prime Lens:** Sigma 8mm Fisheye 4:1 EX

**Images:** Canon CR2 RAW

**Pan Head:** Agno's Mrotator TDS2

**Support:** Manfrotto/ Bogen Ball Head 488CR2 (supports 17.6 lbs)

**Tripod:** Manfrotto/ Bogen 3001d

**Conclusion**

**Qualities:** The Mrotator TDS2 design makes it easy to align the camera and lens so that you will get repeated "NO error" type stitched images. Take precision single photo's the first time and your stitched panorama should be almost error free.

Normally all controls are at the back of the camera. The Mrotator TDS2 alignment knobs are also easily accessed from the back side of the tripod. This means you can stand in one location and make ALL the adjustments. This prevents accidentally hitting a tripod leg.

Rotating through the Mrotator TB click stops is very easy. The clicking sound and feel are solid.

Using the optional Manfrotto Quick Change Plate adapter (US Nr. 3299) is a great idea. It permits removing and re-mounting the camera on the Mrotator TDS2 without having to realign the camera again. The optional camera plate portion of the Manfrotto 3299 remains on the camera base allowing re-use on another tripod or monopod.

Total assembled tripod, ball head, Mrotator TDS2 pan head, are made of steel and aluminum material. The rotator base is master crafted aluminum for accurate rotation. The L-Bracket is master crafted, precision cut and formed structural steel that assures the camera and lens will be properly supported during the imaging process. Together the Mrotator TB rotator base and meticulousness formed bracket will assure exact positioned imaging.

**Recommendation:** Excellent panoramic hardware.