

VR-System SLANT

USER MANUAL

N
NOVOFLEX



Technical Data:

Weight: 560 g (1.23 lbs.)

Dimensions: 155 × 175 × 75 mm (6.1 × 6.9 × 3 in.)

Tripod Sockets: 1/4" und 3/8"

Product Description

The Panorama VR-System SLANT was designed for shooting spherical panoramas by using a monopod in extreme short time. To take advantage of the largest picture angle the fisheye lens offers, the camera is already positioned 60° against the horizon. That means, the diagonal of the camera sensor is positioned vertical. In addition to that, the camera can also be tilted up or down in a range from -15° to +15°. When tilting up, there is now no more need to take a separate picture of the zenith with this adjustment.

Two scaled clamping plates (blue) with ARCA dovetail profile, the matching bases type Q=MOUNT (in grey) and the side handle makes it possible to spin around the centre of entrance pupil of the lens, also called “nodal point”. Together with suitable camera-lens-combinations (see below), you need only 3-4 pictures to get an almost complete spherical panorama (360x180°).

Vertical angle

The optimal angle for the most camera-lens-combinations will be 8° upwards. With this you get enough overlap in the zenith sector and don't eliminate too much of the ground view. This vertical angle can be adjusted with the help of the hexagonal screw and the scale below the upper base in a range from -15° to +15°.

When using a wider angle upwards you get more overlap in the area of the zenith. This is optimal when shooting scenes indoor with complex ceiling structure, but is accompanied by a loss of ground area.

When using angles downwards you get more of the nadir area. This can be useful if the zenith area can be retouched easily, for example, when having a scene with a blue sky.

Horizontal panning angle “increment”

Even if some camera-lens-combinations needs only 3 pictures for the spherical panorama we recommend 4 pictures. The resulting 90° panning angle can be easily estimated. When using a panning angle of 120° the estimate is much more difficult.

Recommended Camera-Lens Combinations:

Cameras with APS-C sensor size (1,5-1,6x crop)

- Sigma 8mm / 3.5 EX DG Fisheye (recommendation)
- Peleng 8mm / 3.5 Fisheye
- Canon EF 8-15mm / 4 L USM Fisheye at 8mm

Cameras with MFT sensor size (2x crop)

- Meike 6.5mm / 2.0 Fisheye

Cameras with full frame sensor

Attention: The lens hood should be removed with these lenses when using a full frame camera:

- Canon EF 8-15mm / 4 L USM Fisheye at 12mm
- Nikkor AF-S 8-15 mm 1:3.5-4.5 E ED Fisheye at 12mm
- Tokina AT-X 10-17mm / 3.5-4.5 DX Fisheye at 12mm
- Pentax 10-17mm / 3.5-4.5 Fisheye at 12mm
- Sigma 10mm / 2.8 EX DC Fisheye HSM
- Nikkor AF 10.5mm / 2.8 G ED DX Fisheye
- Samyang* 8mm / 3.5 Fisheye and Samyang* 8mm / 2.8 Fisheye (I and II)



The list of suitable lenses is always being updated on our website www.novoflex.com

One remark concerning to the above mentioned remove of the lens hood when using a fisheye lens, sometimes also called shaving. In this case you are using a lens, which was designed for a camera with small APS-C sensor on a full frame camera. This is virtually a misuse. It will lead to vignetting, but also extends the picture angle dramatically. This is a great advantage in panoramic photography. The outer (bad) elements of the single pictures are located in the overlap sector and will disappear anyway in the process of stitching, but are necessary for the software to merge the images correctly.

* Samyang lenses are also branded as Walimex Pro, Dörr, Rokinon, Vivitar, Opteka, Bower, Polar, Pro-Optic, Falcon, Ennex and other.

Warning: Shaving the lens hood by yourself is dangerous for the front lens and needs a lot of care. We therefore recommend the work of a pro like Tobias Vollmer (www.360pano.de/en). For some lenses, the lens hood can also be unscrewed by hand.

Limited Suitable Combinations

Camera-lens combinations where you should work with **6 instead of 4 shots** due to the lower angle of the lens.

We recommend using a tripod e.g. the Novoflex TRIOPOD® and a panorama plate with 60° click-stops like the PANORAMA=Q 6/8 II (Illustration on the right).

• Full frame camera:

Classical “fullframe” fisheye lens (15 or 16mm), the Dörr 12mm / 7.4 Fisheye and the Samyang 12mm / 2.8 Fisheye. The lens hood does not need to be removed.

• Camera with sensor in APS-C size (Crop 1,5-1,6):

Samyang 8mm / 3.5 Fisheye and Sigma 10mm / 2.8 EX Fisheye.

• Camera with sensor in Micro-FourThirds size:

All fisheye lenses with 7.5 or 8mm focal length.



Samyang 12mm / 2.8 Fisheye on a full frame camera

Not Suitable Combinations

Not to be used are all “normal” wide-angle or super-wide-angle lenses, this means all lenses without the suffix “fisheye” in the name.

Device Adjustment

The VR-System SLANT enables the parallax-free, horizontal spin around the entrance pupil of the lens. This is the point where the optical axis meets the entrance pupil, also called “no parallax point” or “nodal point”. The position of this point is dependent of the camera-lens-combination and – when using a zoom lens – on the focal length you use, the position of the focus (only small dependence), the chosen aperture (also small dependence) and the angle of incidence (only when using fisheye lenses). When doing the determination of the nodal point, we recommend using the same settings as under real working conditions. This means use the same settings for aperture, focus and panning angle.

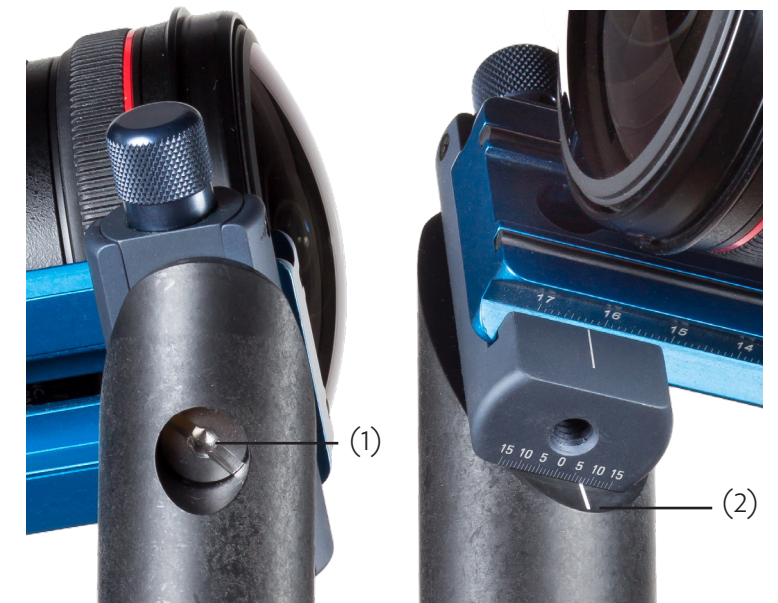
Preparatory step 1:

Adjusting the vertical angle up or down at the side handle

Loose the hexagonal screw (1) a little bit and turn the upper base in the wanted position. Select the right position at the scale (2) on the handle below the upper base and finally tighten the screw.

Tip:

The optimal angle for the most camera-lens-combinations will be 8° upwards. With this you get enough overlap in the zenith sector and don't eliminate too much of the ground view.



Preparatory step 2:

Mounting the camera on the clamping plate

The adjustable end stop (3) enables parallel course of the clamping plate to the optical axis and allows a reproducible positioning of the camera on the plate. In most cases the end stop is mounted behind the camera body. Positioning the adjustable end stop in front of the camera is also possible and useful with some cameras.

Position of the camera on the blue clamping plate

The front lens should be roughly in line with the camera plate, so that you don't see the plate when looking through the viewfinder.

Install the camera including the lens on the blue clamping plate. Don't tighten the camera screw (4) at the beginning so that you can still move the camera a bit.

Now move the adjustable end stop (3) to the camera body. If it touches the edge of the body completely, the camera is placed parallel to the optical axis on the plate.

Before you tighten the camera- and end stop-screw with a hex key or a coin, **please note the following safety instructions!**



Safety instruction assembly:

When mounting the camera body with attached lens on the clamping plate, please make sure that **the front part of the lens or hood doesn't contact the clamping plate**. This would exert intense pressure on the camera body after tightening the camera screw (4) and may damage your camera or lens.

To avoid damage, a spacer plate, such as the **PLATTE-U (5)** is required. Alternatively use a battery grip beneath your camera body or a quick release like the Novoflex Q=MOUNT Mini D on the clamping plate. The problem only appears when using lenses with extremely large diameters (e.g. Canon EF 8-15/4 L USM Fisheye) on very compact DSL's such as the EOS Rebel T7i and others. Professional models are not affected, because they are taller.

General safety references:

- When working on the upper panning base, always hold the camera in one hand, while making adjustments with the other hand.
- Never open any screw, while not securing the camera with the other hand!
- When installing a mounting plate pay attention, that both clamps of the quick release are grabbing at the profile of the plate. The easiest way to check this is to exert pressure on the camera slightly, while verifying if the camera moves.

Preparatory step 3:

Assembly of all components

Even though designed for monopods, it is easier to use a tripod or quadropod during this one-time preparation. In addition a panning base, a ball head or tilt head which allows horizontal panning is useful for a test set up.

Work always from the bottom to the top while assembling the system. Screw the lower base (6) on the tripod, panning base, levelled ball head or on a tilt head. After that, install the lower clamping plate with handle (7) and finally the upper clamping plate with mounted camera (8). Look at the pictures below.

Preparatory step 4:

Set up of the lower clamping base:

The aim of the next step: The correct adjustment is found when the perpendicular line runs through the optical axis (centre point of the front lens) and the mark of the pivoting axis on the lower base.



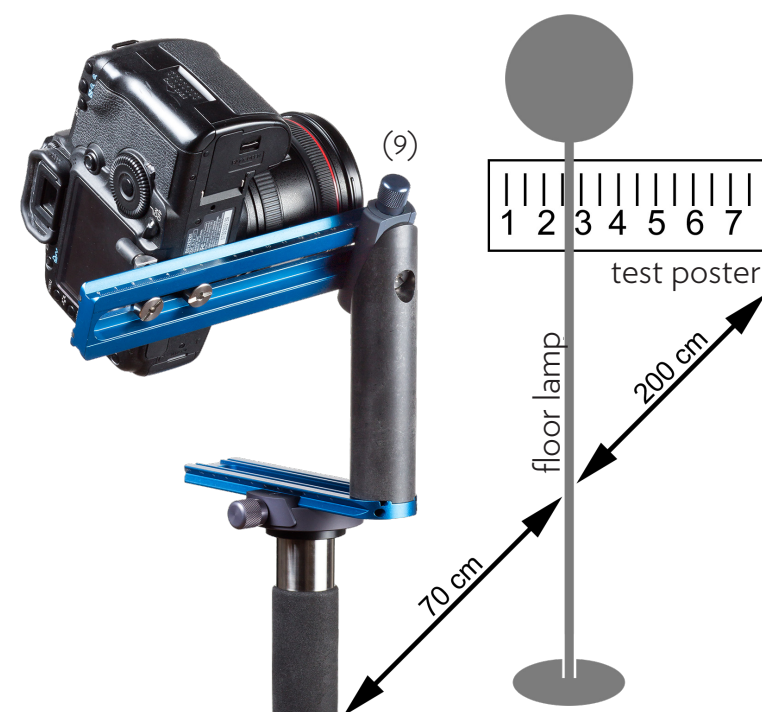
The quickest and easiest way is to use a triangle for visual control from the front. Loosen the lower fixing screw (6) a little bit, move the lower clamping plate in the appropriate position and tighten the screw again. By doing this, pay attention to the safety references at page 4 and let a second person help you. Also avoid touching the front lens with the triangle.

More complex is the method using a plumb line at a distance at approx. 10 cm / 4 inches in front of a mirror. The levelled panoramic head with mounted camera is placed in a distance of approx. 30 cm / 12 inches. The correct scale value is found if looking through the viewfinder, plumb line and mirror image of the plumb line are in line and passing the lower axis mark of the base. To be sure, use the zoomable LiveView of your camera or take some test shots.

Preparatory step 5:

Adjustment of the upper clamping plate:

In the following you need a one-time setup for testing. This setup, which can be easily done at home, should have a vertical line in the foreground and a scale with numbers in the background. This could be realized by positioning a floor lamp (distance approx. 70 cm / 27.5 inches) in front of the camera and a test poster with numbers (in a distance of approx. 2.7 m / 9 feet from the camera) in the background.



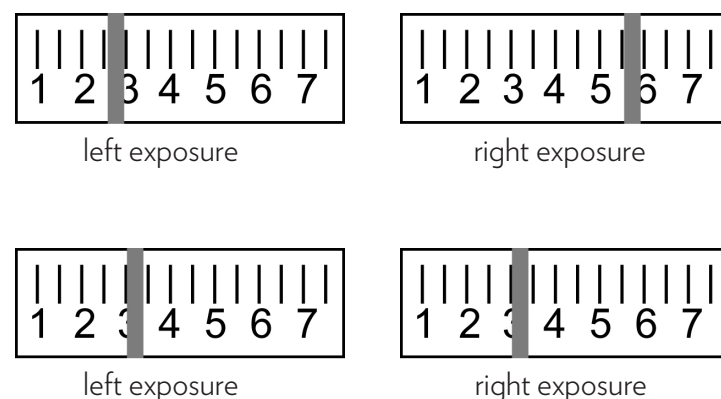
Adjust the camera in such a way, that the middle AF-field is pointing on the vertical structure in the foreground (our pointer, the mentioned floor lamp). Now turn the camera half of the later panning angle to the left and do a test shot.

For example, you want to create your spherical panorama out of 4 single images. In this case the panning angle is 90°; half of the panning angle is 45°.

Now turn the camera back to the middle and half of the panning angle to the right. At this position do your second test shot.

Subsequently compare both pictures on the PC in the 100% view. Notice what scale value the pointer shows.

If there is a difference between the first and second test shot, move the upper clamping plate by using the fixing screw (9) to a different distance and repeat the test shooting until you get identical results. To shorten this test, it is a good idea to start right behind the front lens and to move in 1 mm / 0.04 inches steps in direction to the camera.



Example left: The correct adjustment is not found yet. Left and right shots are showing different scale values on the test poster.

Open the screw at the upper base (9) a little bit, move the clamping plate 1-2 mm and tighten the screw again. Repeat the test, until the left and right shot shows the same scale values.

To compare both shots, use the 100% view of your PC or the display of your camera in playback mode.

If you are using the display of your camera you have to zoom in as much as you can.

Write down the found settings for the upper and lower clamping plate for future exposures with this camera-lens-combination. Now you can use the system on your monopod.

Tips:

When panning the camera to the right and the pointer in the foreground is moving to the right as well, shift the upper unit a bit in direction to the camera. When the pointer is moving to the left you have to shift a bit towards the front lens.

The entrance pupil of most of the fisheye lenses is located approx. 1-3 mm behind the front lens in direction to the camera. Sigma lenses have their entrance pupils near the position of the golden ring.

Shooting Technique and Postproduction:

Spirit Level:

A perfect accessory in order to level your equipment together with the monopod when doing the exposures is a special spirit level such as the Novoflex MONOWAAGE. Press this spirit level against the monopod or fix it with a Velcro® tape or elastic band when taking your shots. In this situation you have a perfect view from above on the bulls eye indicator of the level.

Shooting technique:

When taking the shots the photographer doesn't look through the viewfinder of the camera, because he's recording the complete space around him anyway. Instead he is concentrating on the exact leveling of the monopod with the help of the mentioned spirit level. After each shot he is doing a 90° turn together with the monopod and the mounted equipment, where he's doing the next shot. A video showing the complete process of taking a spherical panorama in less than two minutes can be found on our website www.novoflex.com



Spirit Level
MONO-WAAGE

Stitching the spherical panorama with the PC:

You will get high quality results by accurate adjustment of the hardware, followed by a professional stitching technique.

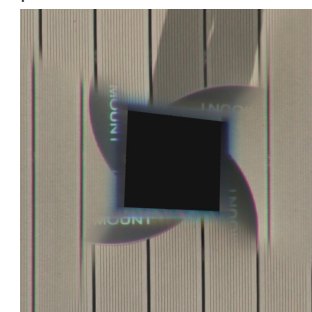
For stitching we recommend the software PTGui or Autopano Pro.

It is very important, that the software identifies the fisheye lens and doesn't treat the pictures like made with a normal wide angle lens. Fisheye lenses offers an extreme wide angle, therefore the distortion is not being corrected. This information is important for the calculation of the spherical panorama. Choose "circular fisheye" at the setting "camera/lens parameters" in order to show the software that you are using a fisheye lens instead of a normal wide angle lens.

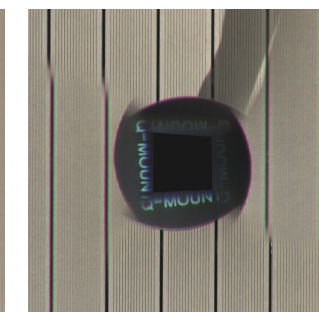
Checking the results:

The praxis has shown that the exact alignment of the lower clamping plate has much more effect on the quality of your panoramas than the position of the upper clamping plate. When having the first results, you can check the correct adjustment of the lower clamping plate by having a look to the ground in the interactive presentation of your spherical panorama.

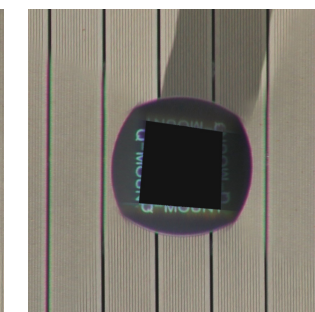
The following images showing a cutout of the ground area of three test-panoramas in the interactive, undistorted presentation.



Lower clamping plate
about 50 mm out of
adjustment



Lower clamping plate
about 5 mm out of
adjustment



Good adjustment of the
lower clamping plate

In this presentation you see the outer part of the lower base. If this part looks like a saw blade, this will be an indication of bad adjustment of the lower plate. In this case, please readjust the lower plate (see page 5).



Recommended Accessories:

Monopods:

- TrioPod® leg aluminium (3 segments) QLEG A 2830
- TrioPod® leg aluminium (4 segments) QLEG A 2840
- TrioPod® leg aluminium (4 segments) QLEG A 2844
- TrioPod® leg carbon fibre (3 segments) QLEG C 2830
- TrioPod® leg carbon fibre (4 segments) QLEG C 2840
- TrioPod® leg carbon fibre (4 segments) QLEG C 2844
- TrioPod® leg hiking stick aluminium QLEG Walk II

Accessories:

- Monopod plate QP MONO
- Spirit level MONO WAAGE
- Spacer plate PLATTE-U



PANORAMA=Q 6/8 II

Using the VR-System SLANT on a tripod:

If you want to use the system on a tripod (recommendation: Novoflex TrioPod®), you have to change the lower base against a panning base. We recommend the **NOVOFLEX=Q 6/8 II** for excellent results. This panning base with selectable click-stops was designed for the use of fisheye lenses. This unit offers selectable panning angles of 7.5° (48 stops), 36° (10 stops), 45° (8 stops), 60° (6 stops) and step less use. When doing the exposure at every second click-stop you will get additional 90° and 120° panning angles.

The panorama plate Q=6/8 II is constructed very small and offers an integrated spirit level, so it doesn't intrude into the picture. Thanks to the milled-out portion of the clamping base the spirit level can be seen from above. The front locking screw can be removed and is only needed in case of step less adjustment. In addition, the base has a ball bearing, which guarantees a clean and play-free run, a 360° scale with 5° increments and a integrated Q=MOUNT quick release.



TRIOBAL=Q 6/8

The PANORAMA=Q 6/8 II, the leveling ball MBAL and the tripod base unit TRIOPOD are united in our product **TRIOBAL=Q 6/8**. The tripod base can be combined with all QLEG tripod legs and built to a tripod optimized for panoramic photography. Tripod legs are available in different designs, lengths and materials, individually or in a set of three. Our current product range can be found on our website www.novoflex.de.

QLEG C 2844



© NOVOFLEX Präzisionstechnik GmbH
 Brahmstraße 7, D - 87700 Memmingen, Germany
 Phone +49 8331 88888, Fax +49 8331 47174
mail@novoflex.com, www.novoflex.com

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NOVOFLEX