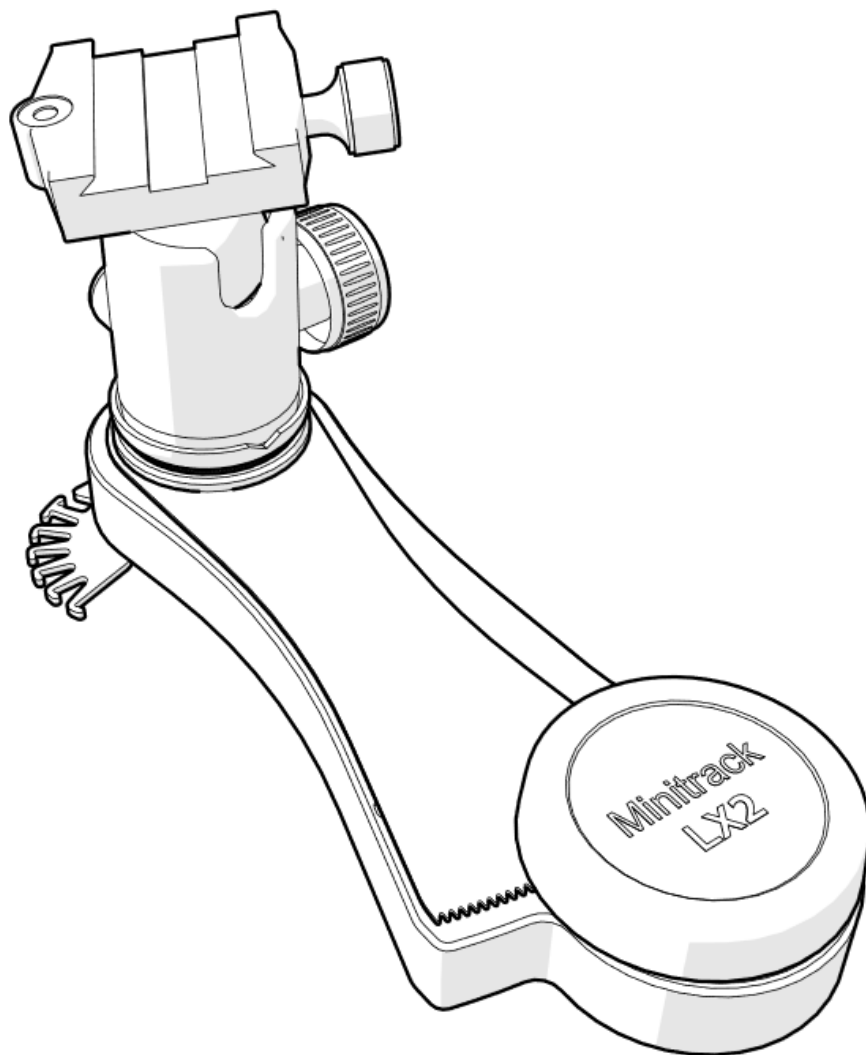


Instruction Manual

omegon



Omegon® MiniTrack LX2

English Version 2.2018 Rev. A, Art.-Nr. 55040, 56106

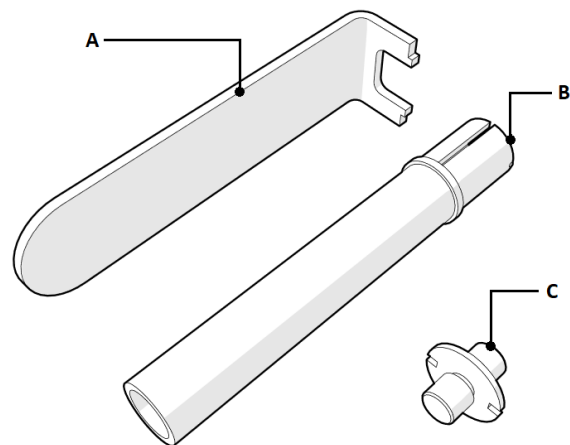
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The Omegon® MiniTrack LX2

Congratulations on the purchase of the Omegon® MiniTrack LX2. This mechanical mount will give you hours of fun. It is the ideal companion for the beginner, intermediate and advanced amateur who is looking for a compact and carry-on mount solution. It's simple design and mechanical quality makes the MiniTrack LX2 a unique tool for wide-field astrophotography.

1. What's included?

- A- Adapter Key
- B- Polar finder
- C- ¼" to ¼" adapter

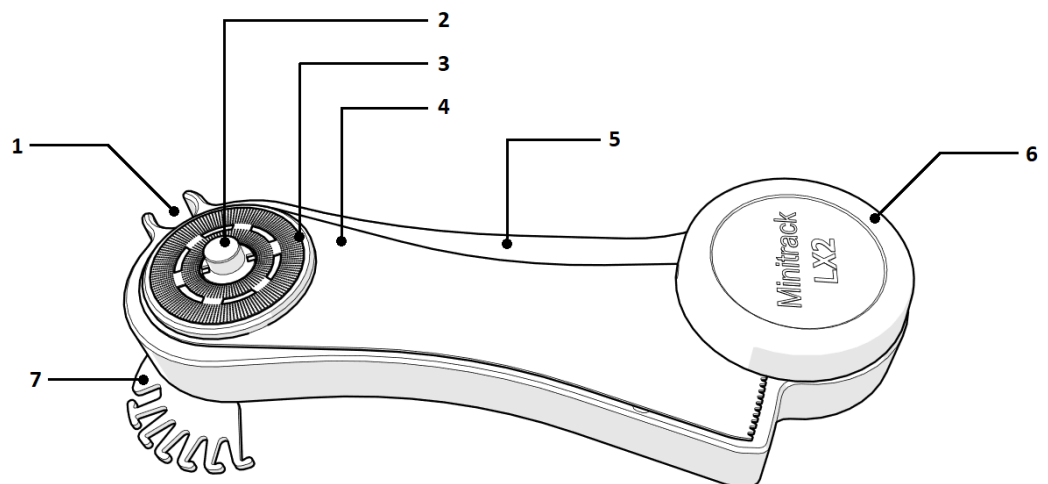


2. MiniTrack's features.

We recommend knowing the different MiniTrack's LX2 features.

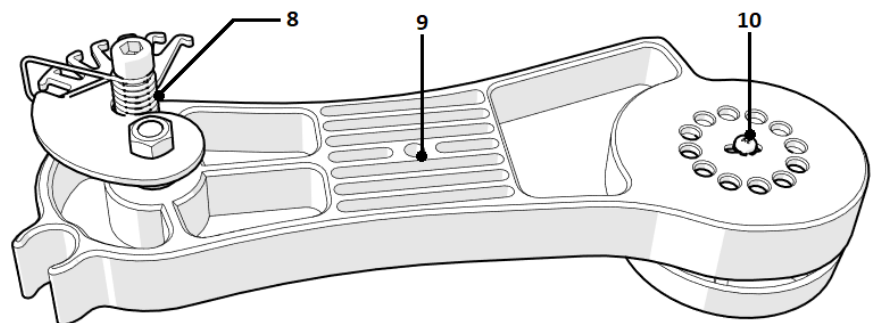
Side A components:

- 1- Polar finder holder;
- 2- Ball-head adapter;
- 3- Platform;
- 4- Arm;
- 5- Body;
- 6- Winding-knob;
- 7- Spring retainer.



Side B components:

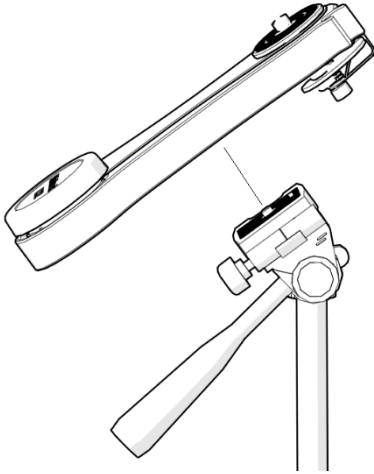
- 8- Spring;
- 9- ¼" thread for tripod;
- 10- Timer screw with washer:



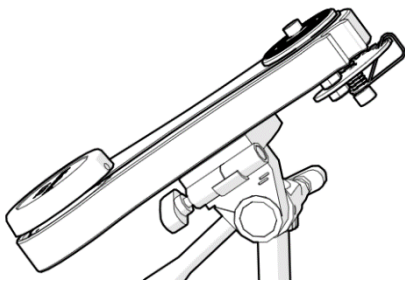
3. How does the Minitrack LX2 mount work? The Minitrack LX2 "follows" i.e. tracks the apparent movement of the night sky – please notice the two articles covered in this instruction manual are designed to be used in the northern hemisphere. The sky "rotates" roughly around Polaris – the northern Star. So in order to have a successful tracking the mount must point to Polaris. This is called setting the mount in station. The mount sits on a tripod head allowing a certain degree of inclination. Usually the inclination corresponds to the latitude of the location. Besides that, a ball head is required so that the camera can be easily pointed to the desired object. Then wind-up the built-in timer and you are ready to go!

4. How to mount the Minitrack LX2?

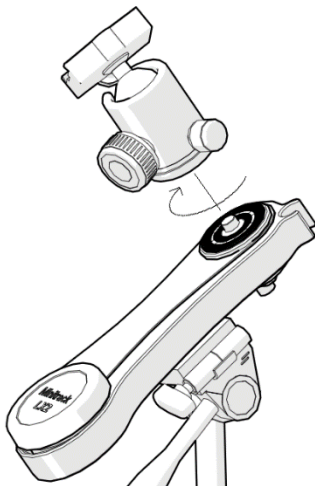
4.1. The Minitrack is compatible with any 1/4" tripod plate (#9 Side B). Set the MiniTrack to the tripod's plate (not supplied) as shown. Make sure that the MiniTrack is set so the inclination can be adjusted.



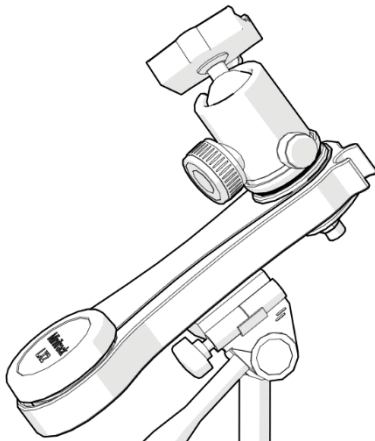
4.2. Make sure the MiniTrack is parallel to the adapter base. This is important because the inclination needs to be fine-tuned to set the mount in station.



4.3. We recommend using a ball-head to operate the Minitrack. From the factory the MiniTrack already has a pre-installed 3/8" thread adapter. If you already have a 3/8" ball-head and wish to use it just thread it to the adapter (#2 Side A). You can also use 1/4"-20 ball-heads. For that you need to remove the pre-installed 3/8" ball-head adapter and replace it by the 1/4"-20 adapter (C). Use the supplied adapter key (A).



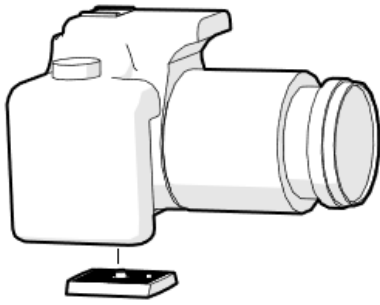
4.4. The ball-head must be securely fixed. Make sure to tighten it well. All the weight from the camera will rest on the ball-head. Besides that, a well-fixed ball-head ensures that there will be no slippage during long-exposures. At this point, it is important that the ball-head knobs are also tight. This prevents movement when installing the camera.



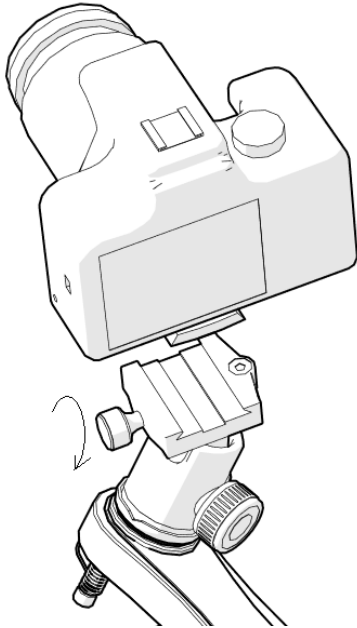
What is slippage?

Depending on the camera angle the setup's centre-of-mass may be against or for the ball-head's thread pitch. This can cause the ball head to slip. To avoid it, the ball-head must be securely fixed. The built-in rubber mate helps reducing this problem.

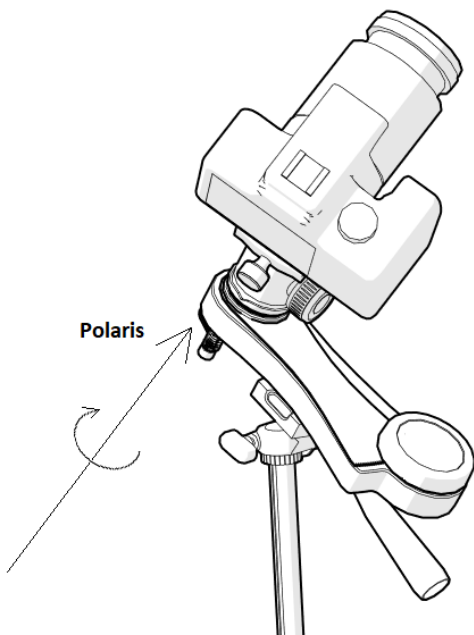
4.5. Install the tripod plate (included only with the ball-head version) to the camera. Make sure the adapter is square to the camera base and well tighten.



4.6. Set the camera (with the adapter) to the ball's-head base. Make sure to tighten it well. Please notice that the ball's-head has two additional knobs. One fixes the ball's-head position in azimuth (360 deg) while the other fixes the ball's-head pointing direction (in altitude). These two degrees of orientation allows the user to point to any desired object in the sky. Make sure both are well tighten before installing the camera. Release the knobs – just slightly – to allow pointing the camera to different directions.

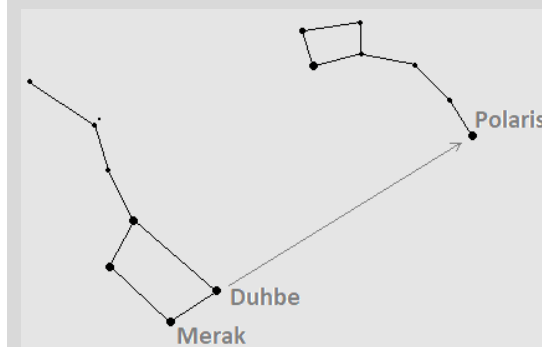


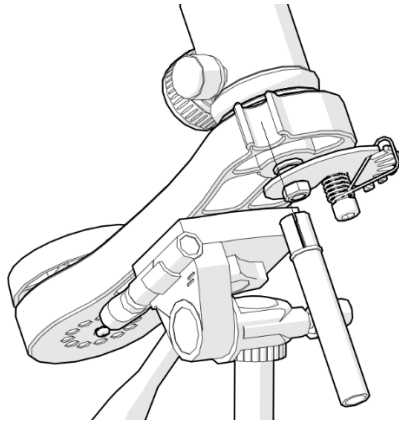
4.7. Point the mount to the Polaris. It is not important to be exactly aligned with the Polaris– a rough alignment is fine. Upon installing the supplied polar finder (B) we will look in more detail on how to have the star in the centre of the polar finder (B) field of view.



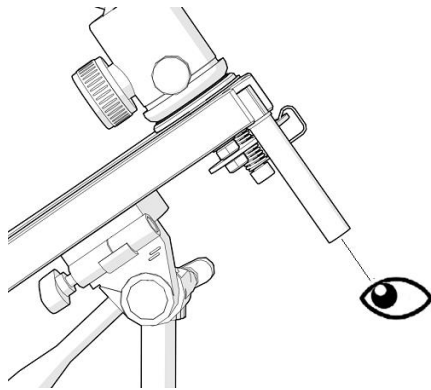
How to identify Polaris?

Polaris is not the brightest star on the sky but still easy to identify. Look up to north and try to find the Big Dipper (constellation). This is a very recognisable constellation. Polaris is about six times the distance and direction of two of it's brightest stars – Merak and Duhbe.





4.8. To align the mount to Polaris with more precision slide the polar finder (B) to the polar finder holder (1 Side A).



4.9. Peek through the polar finder (B) and centre Polaris in the visual field. Turn the tripod's fine-adjustment levelers to do so. Please read the following section for more details on how to correctly use the MiniTrack LX and the importance of correct balance.

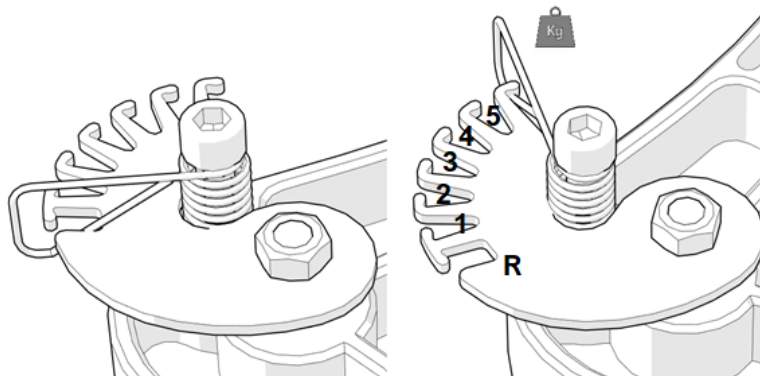
5. Balancing the MiniTrack on the East hemisphere. The built-in timer pushes the photo setup to track the night sky. If the setup's centre of mass is slightly off to the West side of the hemisphere, the generated arm-moment helps the timer to track the objects, this is good. However, the opposite, i.e. if the setup is more off-balanced to east side it may happen that the timer will have difficulties to push and track conveniently. For that reason the built-in spring system acts as a counterweight and gives an extra help to the timer by adding additional push force.

How to determine if timer is not able to push the setup?

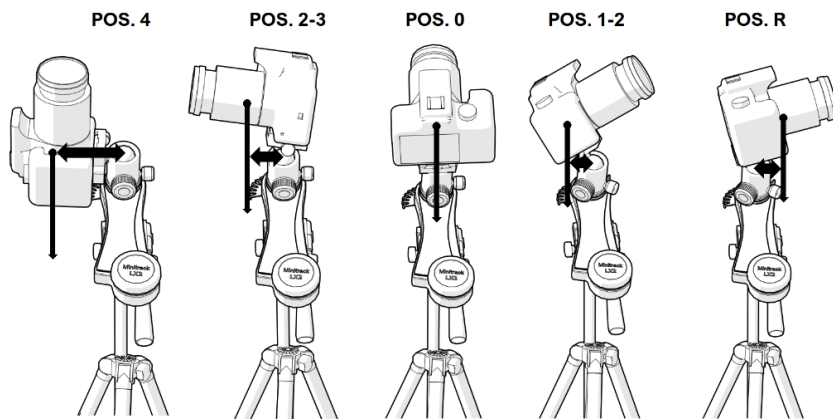
Listen to the timer ticking without any load. Compare that sound to when the setup is assembled. Is there a huge sound difference? – i.e. the timer is not as loud as it should be – then the spring tension must be adjusted.

5.1. Tensioning the spring.

For setups, slightly off-balance use the first positions as shown (image to the left). You can feel that the spring is not under a lot of tension. Use the spring at its highest tension only for heavy setups and strong unbalance. See below how to choose the spring's position.



Please avoid unnecessary spring tension as this might alter the timer's clock tracking rate!



5.2. Pointing East. When the weight of the camera setup tends to rotate the ball-head in an anti-clockwise direction, the spring should be tensioned to one of the numbered teeth, based on how strong the imbalance is. By tensioning the spring in position 5 (worst case scenario) a weight of up to 2kg can be balanced – i.e. pointing to the Zenith with the camera body towards the east in respect to the ball-head.

5.3. Pointing South. The spring can be completely disengaged (position “0”) or let it work at idle (position “1”).

5.4. Pointing West. Aiming towards West, especially if there is a strong imbalance, it could happen that the timer “accelerates” because of the load in favour of the movement, for which the “R” tooth has been added, which allows to compensate also this unbalancing type, by braking the rotation motion (last figure on the right – top).

6. Calculating maximum tracking time. The MiniTrack is designed to carry setups up to 2 kg and track during 60min. This is important to know because setups exceeding this limit may considerably reduce the tracking quality and total tracking time. Something to notice is the objective’s focal length. Wide-field objectives (low focal length) allow for more exposure time. Rule of thumb: one can calculate the tracking time without star trailing by using the following formula:

$$\text{Time (min)} = 100 / \text{Objective focal length (mm)}$$

Objective focal length	Maximum recommended exposure
24mm	4 minutes 10sec
50mm	2 minutes
60mm	1min 40sec
100mm	1 min

6.1. Example.

Camera + objective = 1.8 kg; Objective’s focal length 50mm.

This is within the specifications of the mount. We should expect to achieve $100 / 50\text{mm} = 2$ minutes of tracking without any problems.

What if the weight exceeds the carrying capacity or if we use more exposure time than the recommended?

Then we will see some star trailing becoming more evident. It may be necessary to try different exposure times to better judge which one better fit each setup.

7. Resources. For more information please refer to on-line content such as videos. There is also a very active facebook group (in Italian) about the MiniTrack LX with hundreds of followers and many contributions. The inventor, Mr. Cristian Fattinanzi is also a member of this group and would gladly give some information and tips on how to use this mount. Main language is however Italian.

8. Features.

Carrying capacity: 2 kg

Balancing: using spring system (no counterweight)

accepts ball heads with ¼” or 3/8” photo thread.

Ball-head weight: 300g

Minitrack LX2 weight: 430g

Total tracking time: 60 min

Polar finder: included

Hemisphere: northern