

# Autoguiding basics

Motorized astronomical mounts track the celestial rotation, allowing the telescope to remain pointed at a set object for hours. For this to work, the mount must be precisely aligned. For instance, the polar axis (or hour axis) of an equatorial mount must point as accurately as possible toward the celestial pole.

However, in astrophotography, simply aligning the mount as accurately as possible is not enough. Depending on the exposure time, mechanical inaccuracies in the mount become noticeable. The longer the desired exposure, the more pronounced these effects are. The mount's tracking must be constantly monitored and corrected. For this, **guiding aids** such as a guide scopes with guide scope rings or an off-axis guider are required.

If the mount's correction is performed automatically, it is called **autoguiding**. This requires a camera and a control system that constantly sends impulses to the mount. Suitable cameras can be found [here](#) in the Astro Cameras category.

To ensure that an astronomical mount remains precisely aligned with a set object, the tracking must be controlled. This control can be done using a small telescope mounted parallel to the main telescope. This small telescope is called a **guidescope**.

In contrast to a standard finder scope, guidescopes allow the attachment of a camera. This makes the tracking control process known as **autoguiding** possible. Guidescopes can also be used as finder scopes, though the necessary eyepiece is usually not included in the delivery.

The focus point of guidescopes is generally set so that cameras with a flange focal distance (back focus) of up to 2 cm can be used. For use as a finder scope, this means it is usually not possible to use a star diagonal or an erecting prism between the guidescope and the eyepiece.

Guidescopes are typically attached to the telescope's finder bracket ("finder shoe"); guidescope rings are used for this purpose.

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