

The further development of the DiGOS Allsky camera

Guenther Erik (1), Bauer Sven (1, 2), Mattner Reik (1), Steinborn Jens (1)

(1) DiGOS Potsdam GmbH, Potsdam, Germany; (2) GFZ Potsdam, Potsdam, Germany

AllSky cameras are essential for SLR station operation both manual and autonomous. They provide information about the general weather situation, cloud conditions relevant for scheduling as well as the general station condition. Requirements on the camera are a good image quality, weather resistance as well as easy maintenance and integrability into a station. The DiGOS AllSky camera is a product which is made to fulfill these requirements.

The camera is capturing images with an 8,86mm CMOS chip at a resolution of 3096x2080 pixels. It features exposure times up to multiple minutes, while automatically adjusting to day and night conditions. The lens system provides a field of view of 185° and thus images of the full sky at high quality during day and night.

A Raspberry Pi based Debian Linux provides a full OS, in order to keep the software maintainability high. A developed Mosquitto-based network interface allows easy streaming of the images and controlling of the camera properties from or to multiple clients.

The camera is made for low maintenance outdoor operation. It features an integrated heater in order to remove dew from the cupola and thus provide continuous visibility. Furthermore, a dry cell which can be checked and changed easily from the outside, keeps the inside of the system dry. The whole system is powered via a PoE+ interface.

With its setup, the DiGOS AllSky camera provides high quality full sky images at day and night during summer and winter, while being easy to integrate and maintain in a station network, both hardware and software wise. The system was developed and tested in cooperation by DiGOS and GFZ Potsdam.