

Abstract (H.aHKbox)

Here we present the HARDWARE.astronomy Housekeeping Box (H.aHKbox). The H.aHKbox is a low-cost open-source temperature monitoring and control system, which employs existing open-source devices (e.g Arduino, RaspberryPi) to reduce costs while also limiting the complexity of the development. The Ha.HK Box features a base system with a control computer and 10 expansion slots that can be filled with a variety of expansion cards.

The first deployment of the Ha.Hkbox will be for the ZEUS-2 submillimeter grating spectrometer. As such the modular cards will include AC and DC excited 4-wire bridges, 2-wire bridge, and PID controller card. The system will achieve power outputs of up to 300 Watts with sub-millikelvin temperature sensing accuracy.

All design, firmware, software and parts list will be published online allowing for other projects to adopt the system and create custom expansion cards as needed.