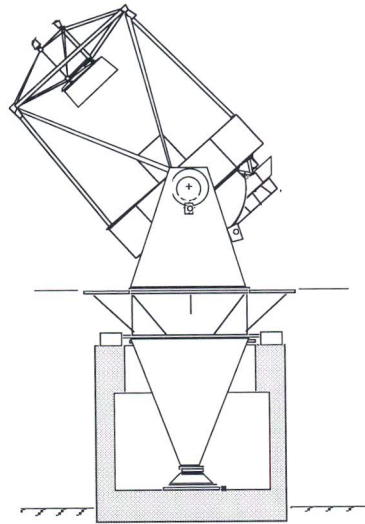


WISCONSIN
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3.5 METER TELESCOPE

**WIYN Operations Readiness Review:
Review of Instrument Adaptor Subsystem Design
Requirements**

WODC 02-40-01



Operations Readiness Review

Instrument Adapter

D. Blanco

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1. Introduction

This document describes the operational readiness of the Instrument Adapter Subsystem (IAS) for the WIYN telescope.

The IAS was designed to be a general instrument interface performing the functions of acquisition, autoguiding and derotation, autofocus, image analysis, spectral calibration, and atmospheric dispersion compensation. The IAS is constructed in modular form to allow phased deployment of the various modules, and to enhance the maintainability of the system.

As of this report all IAS modules have been installed with the exception of the spectral calibration module and the atmospheric dispersion compensator. These remaining modules are in preparation and are expected to be completed in the next two months.

The hardware installation does not always imply full operation, however. Software development which was initially specified as part of the control system deliverable has become the pacing item for completion of the IAS.

2. Requirements & test results

The sections of this document parallel the requirement as set forth in the Scientific & Technical Requirements document (WODC 00-01-05) section 6.3. Quotes from that document are shown in italics

- *Availability:*
General-use Nasmyth focus (WIYN Port).
Autoguide & derotate, autofocus, image analyser, spectral calibration, ADC.

These goals have either been met or are in development.

Standard bolt patterns were included on the instrument mounting flange to make mounting many different instruments possible. However, heavy instruments must interface to the mounting bolts at the corners of the IAS structure.

- *Weight capacity:*
Instrument weight : 600 kg maximum.
Cantilever load: 2500 N-m maximum.

This has not been tested, however the IAS was designed to meet these specifications provided the instrument is mounted to bolt pattern provided at the corners of the structure. A finite element model of the IAS when subjected to the maximum specified instrument loads predicted that the instrument mounting flange would sag 7 μm and tilt 0.35 arcseconds (equivalent to an image motion of 0.06 arcseconds measured at the image plane).

- *Field acquisition:*
Sensor type TBD
Field of View: 1.5 arcminute.
Limiting magnitude: $m_v = 21$ in 10 seconds with a dark sky.
Set-up time: 5 seconds.

