



PRIME OPTICS

OPTICAL SYSTEMS DESIGN

Prime Optics is an optical design consultancy service offering research and development of optical systems for scientific, industrial and commercial applications. The services that are currently provided include:

- system assessment.
- design & feasibility studies.
- final designs of optical systems.
- opto-mechanical design assistance.
- assistance with fabrication, system assembly, testing, troubleshooting and calibration.

Basic research is fundamental to the development of fine optical systems. A rigorous and wide-ranging approach is used which is supported by extensive in-house literature and a diverse personal network both in Australia and overseas. Results of original research are occasionally published.

Prime Optics uses its own Optical Design software which is under constant refinement. There are none of the restrictions that sometimes limit proprietary products. Software is developed or adapted on-demand for unusual applications. Commercial Optical Design software (OpticStudio) is maintained as a back-up and to suit customer requirements.



PRIME OPTICS

CAPABILITY & EXPERIENCE, 1990 – present

Since its establishment in 1990, **Prime Optics** has provided the Optical Design for many major new astronomical instrument developments, including:

- **2dF**: 2dF: the wide field corrector for the AAT and its spectrographs. This instrument has finished a galactic red-shift survey of the southern skies and now feeds a medium-resolution spectrograph [AAOmega]. In the next couple of years it will be reconfigured to feed a high-resolution spectrograph [HERMES], the design for which was conducted by this bureau.
- **CASPIR**: IR instrumentation for the **MSSSO**. This instrument delivered most of the early (earthbound) IR pictures of the collision of Comet Shoemaker-Levy with the planet Jupiter.
- **AUSTRALIS**: Preliminary research for the IR spectrographs for the European Southern Observatory's 8 m telescopes.
- **IRIS2**: IR spectrograph/imager for the **AAT**.
- **PNS**: the Planetary Nebula Spectrograph for the **WHT** and **TNG** telescopes.
- **EMIR**: initial development of the IR spectrograph for **GRANTECAN**.
- **SALT HRS**: initial development, with Stuart Barnes of Canterbury University [Christchurch, NZ], of the High Resolution Spectrograph concept for the **SALT** facility in South Africa.
- **HESP**: concept development, with partners, of a high resolution spectrograph for the Indian Institute of Astronomy's Hanlé facility.
- **SIFS, BTFi and STELES**: instrumentation development for the 4m **SOAR** telescope (Cerro Pachon, CHILE) of the National Astronomical Institute of Brazil.
- **CYCLOPS and GNOSIS**: new instrumentation development for the AAT.



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- **WiFeS**: broadband spectrograph for the ANU 2.3 meter telescope at Siding Spring Mountain.
- **GSAOI**: new instrumentation development for Gemini South managed by the Mount Stromlo Observatory.
- **eyeConnect**: Ophthalmic field instrument for frontline eye examination.
- Echelle Spectrograph development for **KiwiStar Optics**.
- **ECHARPE** and **SPARC4** for Brazilian Astronomy.
- High resolution aerial photogrammetry under development for **innov.aero**.
- Marine and Airfield Beacons and Sector Lights for **Sealite**.
- Wide Field Corrector design for the **4MOST** consortium.
- Review and design for the **Great Melbourne Telescope** restoration.
- Review and design for the **GMACS** instrument on the **Great Magellan Telescope**.
- Review and design for the **Mauna Kea Spectroscopic Explorer** instrument.

Prime Optics supported the CSIRO (Australia) Atmospheric Pressure Sounder project in the early '90s with VIPAC (Sydney) through Optical Design, calibration, alignment and testing.

Prime Optics has an ongoing association with LaserDyne Technologies (Gold Coast, Queensland) through product development and a joint venture.



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Prime Optics is assisting several parties in the development of commercial products for medical applications, traffic sensing and airborne hyperspectral imaging.

Prime Optics assisted the **AAO** in the development of a wide-field corrector for the **SUBARU** (Japanese 8 m telescope on Mauna Kea, Hawaii) telescope.

There is a new collaboration with the **Mount Stromlo Observatory** in the development of instruments for the GMT (Great Magellan Telescope).

Optics have also been developed for simulators, home theatre and thermal imagers.

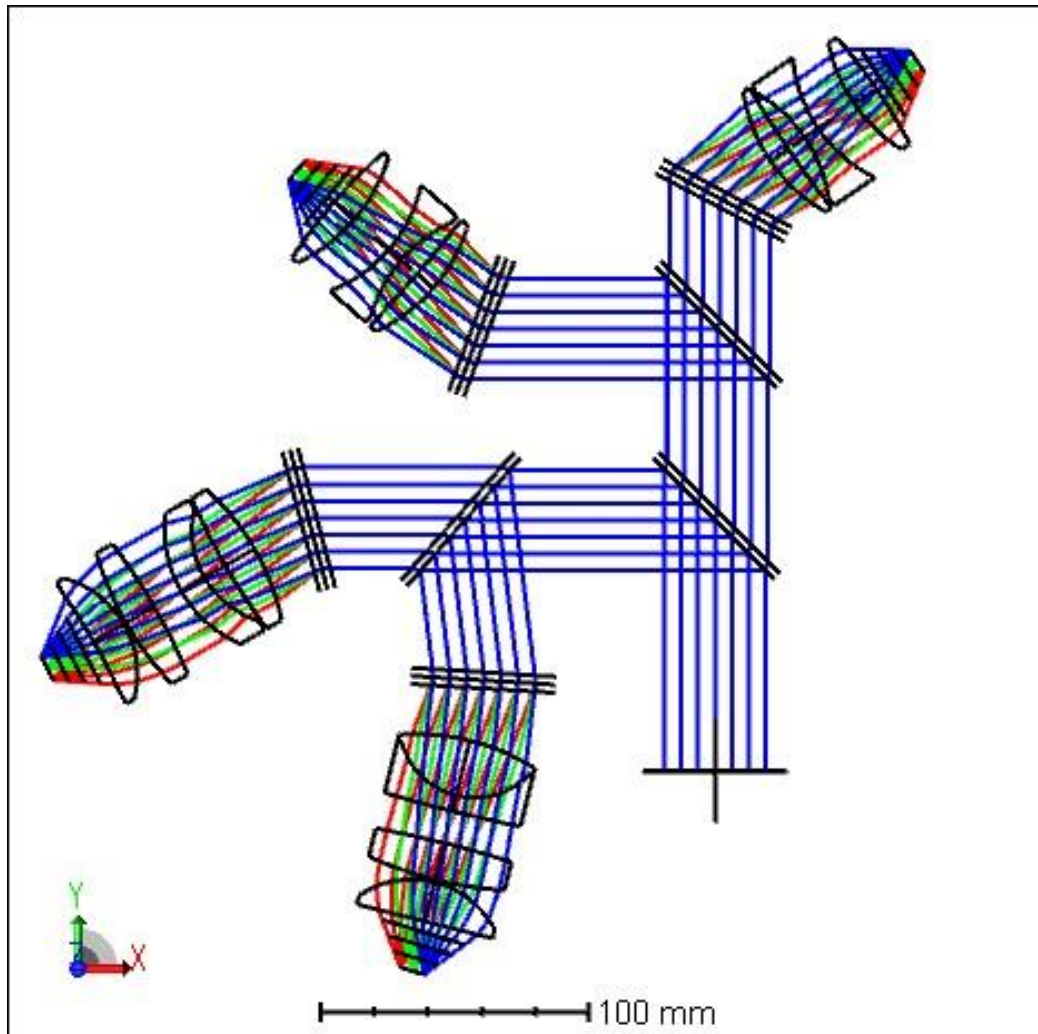
Light guides and luminaires have been developed for consumer electronics and lighting applications.



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CAPABILITY & EXPERIENCE, 1990 – present

The HyVista "HyMap" hyperspectral imager was redesigned for the Chinese Geological Survey.





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