(Version 4)

LDSS Support Agreement

DRAFT 2008-10-21

Instrument Description

- LDSS3 is a multiobject optical (CCD) spectrograph with an 8 arcminute field of view at the Magellan Clay telescope.

Configuration

The following information will be provided relating to the telescope/instrument configuration:

Specify the intended port

- Clay Nasmyth West.

Specify the secondary mirror and ADC:

- F/11, no ADC.

Provisions for guiding: Does the instrument require one of the observatory guiders and, if so, specify which model?

- A standard large Magellan guider is used.

Specify instrument size and weight:

- Weight is approximately 1700 lbs, diameter is that of a Nasmyth guider, length is about 8 feet.

List size and location of instrument racks, compressors, and other equipment.

- One 19-inch instrument rack is permanently fixed underneath the Nasmyth West platform at Clay. One CryoTiger compressor under the telescope is used to cool the CCD array.

Description and location of the control console. Is this dedicated equipment or shared with other instruments?

- The instrument is controlled from the observer's workstation shared with other instruments at the Clay telescope. No additional equipment is necessary in the control room.

Discuss telescope and rotator balance considerations.

- LDSS3 is mounted on a standard Magellan rotator with its full cantilevered weight borne by the rotator bearing. LDSS3 is roughly rotationally symmetric.

Specify special baffle requirements.

- A baffle plate is mounted immediately ahead of LDSS on the guider to keep stray light from entering the instrument. No baffles ahead of the slit masks are included with LDSS.

Cable description and layout. State if the cables are permanently installed and if they are shared with other instruments. Is a cable wrap required?

A cable wrap is needed to support the following:

- 100 PSI compressed air
- Low pressure purge air for the CCD dewar window
- Cables and fiber optics for the instrument motion control and sensors
- 24VDC power for control mechanisms

Service requirements

The following information will be provided related to controls, utilities, and cabling:

Requirements for power, compressed air, and coolant.

- 117 VAC 15A
- 100 PSI compressed air

Requirements for heat extraction.

- None

Requirements for cryogens.

- None

Routine Support

The following information regarding routine operation of the instrument will be provided:

Description of the routine servicing and periodic maintenance that will be performed by the Observatory Staff both when the instrument is on and off the telescope.

- Slitmask changes will be required most nights that the instrument is used.
- Filter changes will occasionally be required.
- Routine focus logging as a function of temperature and filter is requested.

Technical personnel required for operation and an estimated amount of time they will regularly devote to the instrument.

- Instrument specialists are already trained for instrument set-up, routine adjustments, and observer training. We estimate two hours are needed for set-up on the first day of each new observer run and one hour each day thereafter.

Consumable supplies required for operations with estimated quantities.

- None

Power, air, and coolant requirements.

- 117 VAC, 15A
- 100 PSI compressed air

Description of the procedures required for routine instrument changes. These include pump down and cool down procedures, cabling, power up, filter and mask preparation, preparation of the data system, and actual start-up procedures. Actual handling procedures are described in a later section.

- Observatory staff have refined these procedures from previous experience.

Requirements for status reports from the support staff to the instrument group. Here the instrument groups would specify what feed back they expect from LCO on the operation and performance of the instrument.

- We would like to build up focus vs temperature data as well as filter focus offsets. Frequently recording focus positions and temperature (as measured on the LDSS control screen) would be appreciated so we can develop auto-correcting software.
- Unusual noise problems with the CCD should be reported and, if possible, example data frames with the problem should be sent to OCIW.

Instrument mailing list and the names of its members.

- Instrument PI: Edo Berger
- Software engineer: Christoph Birk
- Engineering: Ian Thompson, Greg Burley, Alan Bagish, Alan Uomoto
- Other: John Mulchaey

Troubleshooting and repair

The following information will be provided relating to troubleshooting and repair:

List the subsystems that are serviceable by the observatory staff and describe those repair procedures that may be attempted by the local staff for each subsystem.

- Controls: Most of the mechanical control system uses commercial components and have available spares. Some components (e.g., air solenoid valves) are difficult to procure in exact copies but workarounds are simple to implement if the spares run out.
- The CCD system is similar to other OCIW packages. Troubleshooting by LCO staff may be done under the direction of OCIW engineers (Thompson or Burley).

List the critical subsystems and repair procedures that specifically may not be attempted by the local staff.

- Opening the CCD dewar should not be done without consulting OCIW staff.
- Optical alignments should not be done without consulting OCIW staff.

Specify procedures that must be followed when a problem occurs. This should include who is the responsible person that should be contacted at the home institution, how notification is made, who coordinates the local effort at the observatory.

- If a problem occurs, email should be sent to the LDSS mailing list. The designated OCIW scientist will respond immediately to coordinate repair efforts.

Specify who authorizes and pays for replacement parts and contracted services.

- Ian Thompson at OCIW authorizes payments for parts and contract services. The cost is shared by the Magellan partners.

Specify what constitutes chronic or severe problems that go beyond the ability of the staff to maintain the instrument and/or that place excessive demands on the technical staff such that normal observatory operation is impaired. Under these conditions intervention by the instrument group is expected.

- CCD data degradation or failure
- Vacuum failure in the CCD dewar
- Optical mis-alignment
- The instrument team should be consulted for any problem requiring opening the instrument body on its trolley

Support provided by the Instrument Group

List the individuals at the home institution that are responsible for supporting the instrument:

Principal point of contact

- Ian Thompson

Others: mechanical engineer, software systems, instrument scientist.

- Alan Bagish, Alan Uomoto, Greg Burley, Tyson Hare

Describe the remote help that will be provided:

Online trouble shooting and consultation.

- The appropriate engineer or scientist at OCIW (see above list)

Updating documentation.

- Edo Berger

Purchasing parts and arranging repair service in the US.

- Ian Thompson

Specify the period for this support. Normally this would be for the life of the instrument as a Facility Instrument.

- As long as the instrument keeps facility status

Describe the on-site help that will be provided:

Individuals committed to traveling to Chile when necessary.

- Ian Thompson, Alan Uomoto, Alan Bagish

Time to respond.

- One day

Criteria and procedures for authorizing and scheduling trips.

- Depending upon availability, someone from OCIW will travel to LCO after a telecon discussion of the problem with observatory staff.

Describe the training that will be provided:

During the development phase at the home institution.

- N/A

On-site at commissioning.

- N/A

Over the course of operations.

- If needed, OCIW staff will train and/or refresh understanding of LDSS operation.

Handling & storage fixtures

The following information will be provided relating to handling, storage, and shipping:

Description of required handling & storage fixtures and a statement of how they are to be provided.

- LDSS maintenance trolley
- Generic Magellan spreader bar

Procedures for moving the instrument to and from the telescope and mounting it on the telescope.

- These have already been refined by observatory staff.

Description of the off-telescope storage requirements including amount of space, type of environment, and power or cooling.

- These are already known by observatory staff.

Description of shipping requirements, shipping costs and how arrangements are made. State

if this is an on-going expense, e.g. instruments shared with other observatories. If parts of the instrument must be returned to the home institution for periodic upgrade or service, so state.

- There are no routine shipping requirements; the instrument is already on-site at Magellan.

Special provisions

Describe any special provisions, conditions or modifications at the Magellan facility not already covered above and necessary in order to operate the instrument.

- N/A (but a cable wrap was built to communicate with the control electronics under the platform).

List any factors associated with the instrument that would interfere with the operation of instruments on other ports or that otherwise constrain normal operations.

- None

Are there arrangements with other organizations, observatories, or groups that affect the way this instrument will be used and supported at LCO?

- Use of LDSS3 is contingent upon an active time-trade agreement between University of Durham and Carnegie (OCIW).
