GATTINO Installation Instructions:

See Gattino Manual CD for more high resolution pictures showing install procedure.

Cameras:
1/ Place baseplate on container roof with North South alignment
2/ Feed cables through the two middle holes in the baseplate SBC (yellow connector) on North side and Sky cam (green connector) on South.
3/ Connect cable to SBC, and fix to the baseplate via the aluminium plate and nuts underneath.
4/ Connect cable to Sky Cam, and fix to the baseplate via the aluminium plate and nuts underneath (keeping lids open and the two boxes as far apart as possible).
5/ Align the SBC to point to South Celestial Pole (75 degrees elevation South) using the alignment tool and the sun position (will send more details of this later).
6/ Take off lens cap from SBC and aluminium foil from Sky Cam.
7/ Check the focus of the SBC Cam (the dot should be directly underneath “20”). Ensure that the apertures for both lenses are fully open.
8/ Mark the position of the baseplate, and drill holes through the container roof to attach. If possible also drill holes directly underneath the cameras to feed the camera cables through. If this is not possible then cut piece from the side of the wooden baseplate and feed camera cables through this.
9/ Bolt baseplate to container roof.
10/ Place CaH₂ (taking usual precautions, ie mask, gloves, goggles) in the aluminium boxes and install in both cameras.
11/ Check wires and cables are OK.
12/ Close both camera box lids, pressing down firmly to seal.
13/ Tighten window of SBC cam.
14/ Place insulation covers over boxes.
**Shabar:**

1/ Find a 2m length of wood/metal and connect the DIN rail sections onto this (or use a 2 m section of DIN rail if there is any on station).

2/ Fix this rod between two posts facing North so that the DIN rail is angled at approximately 40 degrees elevation (the maximum elevation of the moon). Shabar cable length is ~15 m so install about 10 m to the North of the container.

3/ Clip the Shabar modules along the DIN rail in order from 1 to 7 with the following spacings between each photodiode:
   1 – 35 mm  2 – 85 mm  3 – 170 mm  4 – 220 mm  5 – 380 mm  6 – 610 mm  7

4/ Attach each connector (each is labelled) to the appropriate shabar module, using cable ties to fix the cable to the rod.

**Iridium:**

1/ Take from the AASTINO the iridium antenna cable, the antenna pole, the antenna, and the DoD SIM card from the iridium phone, and re-position antenna near the container.

Feed the two camera cables, the two shabar cables, and the iridium cable into the container. Place GATTINO computer/electronics box on top of APC UPS unit inside the container, (somewhere high and/or close to the heaters). Fix the iridium phone near the computer/electronics box.
Make the following connections to the computer/electronics box:

1. SBC camera (Red 19 pin Milspec)
2. Sky camera (Purple 19 pin Milspec)
3. Shabar 1 (Green 19 pin Milspec)
4. Shabar 2 (orange 19 pin Milspec)
5. COM2 DB9 to ADAM output DB9
6. COM1 DB9 to Iridium phone DB9
7. Iridium Power (3 pin) to Iridium phone
8. Ethernet to local hub
9. Power Australian connector to UPS
10. AC Monitor 3 pin connector to parallel port and plug pack
11. VGA connector to monitor (AASTINO)
12. PS/2 keyboard and mouse (AASTINO)

Convert the power board from Australian AC mains plug to European. Plug in UPS and plug pack into mains power board. Turn on UPS.
Once everything connected then turn on power with silver switch, set right hand switch on front to “wakey-wakey on”, LED switch (on left) is down.

1/ Logon as user: root, password: domeca, and start xwindows with “startx”
Set the computer to Dome C local time with “date 0116153006” (ie Jan 16 15:30 2005)

2/ Test Iridium connection:
Turn on iridium phone, then type “/sbin/service iridium restart” and watch the phone. It should turn off, and then turn on after about 1-2 minutes, then should say Data Call in Progress on handset. This will stop flashing when connection established (if there is enough signal). Try to ssh (ping wont work) to some external machine (ie newt). This may take a while. Confirm that you can log on to the external machine, and then “/sbin/service iridium stop” to cancel the connection. During this process you can monitor the progress and look for errors if you do “tail –f /var/log/messages” in another window.

3/ Test temperature module:
“cd /home/local/bin”
“./ADAM 1” should return Sky camera box temperature
“./ADAM 2” should return SBC camera box temperature
“./ADAM 3” should return electronics/computer box temperature

4/ Test Cameras:
In same directory (ie /home/local/bin) turn on both cameras
“./switch Sky=1” and then “./switch SBC=1” and wait for one minute.
“./test SBC temp” will initialise the SBC camera and give cooler status, and
“./test Sky temp” will initialise the Sky camera and give cooler status.
To take an image with each camera do “./test SBC image” and then “./test Sky image”, this will save SBC.fits and Sky.fits in /home/local/bin/.
It may take some time as this command will wait in case the crontab is trying to take an image. If this works then leave both cameras on.

5/ Test Camera Heaters:
In /home/local/bin
“./switch H_SBC=1”
“./switch H_Sky=1”
The green LEDS on front of electronics box should turn on. After about 10 minutes check the camera box temperatures (with ADAM 1 and ADAM 2) to see if they are getting warmer. Leave both heaters on (the crontab will turn them off provided camera boxes are above -40 degrees)

6/ Test Shabar:
In /home/local/bin directory:
“./scanADC” will give voltage from each Shabar channel, all should fluctuate from 0-5 V (except first channel which will be zero). Then do
“./switch Shabar=0” to turn it off and “./Scan” again. Voltage for each channel should be 0-0.3V
Turn Shabar back on with “./switch Shabar=1”
Do “./sampADC” to take a 10 sec scan sampled at 1 kHz. Values should fluctuate around 2.4 V. Leave shabar on.
7/ Test USB Hard Drives
“/home/local/bin/USB1=1” to turn one of the USBHD on, wait 30 secs and then
“mount –t ext3 /dev/sda1 /mnt/usb1”
and check if it is mounted with
“df”
verify you can write to the usb with eg “touch /mnt/usb1/testfile”, then
“umount /mnt/usb1”
“/home/local/bin/USB1=0”
and try the other one with,
“/home/local/bin/USB2=1”
“mount –t ext3 /dev/sdb1 /mnt/usb1”
Again verify you can write to it, then unmount “umount /mnt/usb1” and turn it off
“/home/local/bin/switch USB2=0”
Leave both USB drives off.

8/ Test local network:
Find out the IP number, gateway, and netmask for the Concordia network
edit (with vi) the file
/etc/sysconfig/network-scripts/ifcfg-eth0
And then do “service network restart”
Confirm that you can ssh to and from the base.
Find a computer (linux or windows) at the base and set up the two spare Maxtor USBHD, confirm
that you can download data from the gattino at the station.

If everything works (!!!) then leave just leave it running and I can confirm that its working via the
iridium link.