TPC LASER MANUAL

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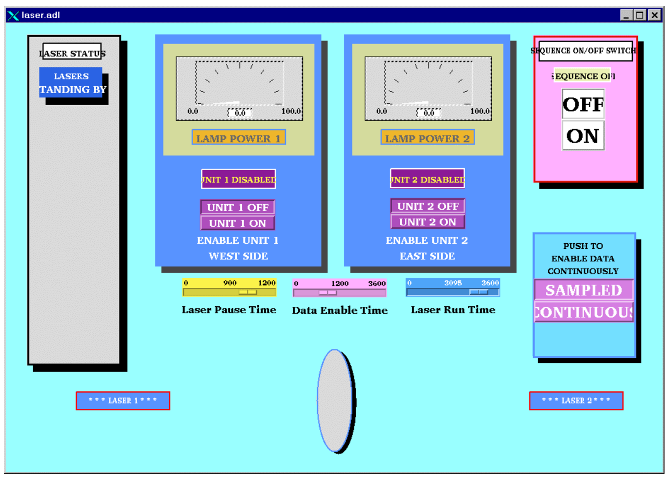
1.0 Turning on the Lasers

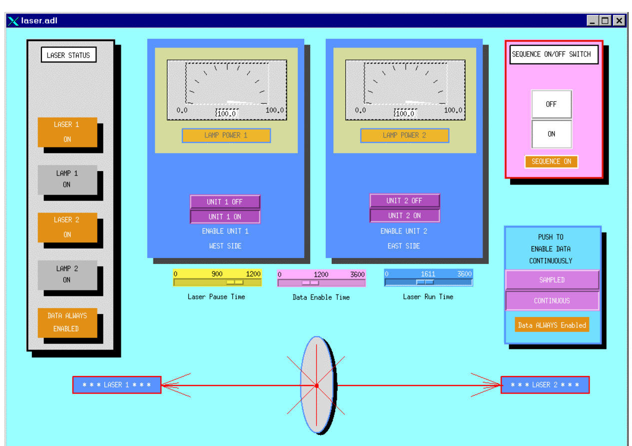
There are two TPC lasers (east & west) which are used for calibration. The same two lasers are used by the FTPC (the beams are steered remotely into either chamber). This year, it is no lomger necessary to make a special laser run – simply powering on the lasers during an active physics run will cause DAQ to interleave laser events with the physics. To power on the lasers:

NOTE: In the following procedure, it is necessary to start both lasers together. The controls will not work for one laser only.

1. Go to desk top # 5 and click on the “Laser” button to bring up the laser control panel:



2. Click on the sequence on “ON” button and within a few seconds, click on the “Unit 1 On” and Unit 2 On” lamp power buttons. The lasers should come up to full power within 2 minute. Note that only the EAST laser will trigger DAQ. When the lasers are on, the display will look like:



3. To check that the lasers are really on, see below for a method to view the laser spot via CCD camera.

4. To turn the lasers off, click on “Unit 1 Off”, “Unit 2 Off”, and the Sequence “OFF” button in turn.

2. Viewing the control boxes

Using the STAR plant remote TV system one can view the status lights on the laser control boxes on the south platform. To do this, go to the conventional systems PC (upper right monitor at the magnet control console). The TV system should be running, but may be hidden by the water system readouts. To get the TV image up, click on the iconized button labeled “Image Pull – Microsoft Internet Explorer”. To get the camera controls up, click on the iconized button labeled “VIDEOPC – pcAnywhere”. If the TV system is not running, see below to get it started.

To view the control boxes, do the following:

1. On the camera control window, select CCD #1 (first floor south camera).

2. Click on L4 for the EAST laser control box or L5 for the WEST control box. (The row of L buttons are preset camera positions.) The picture should look like:

This shows the control box with the “OFF” light lit. After turning the lasers on, the picture should change to:

The lower right light is the “ON” light. The upper left is the “Lamp Sync” light. If these two lights aren’t on, the laser is not functioning properly. This sometimes happens for the West laser – see below for a method to reset it.

If the STAR remote TV system is not running on the conventional systems PC, do the following:

1. Double click on the desktop icon labeled “Symantec pcAnywhere”. Click on the “Network” icon that comes up. Select the host “VideoPC” and click on OK.

2. Logon to VideoPC – Username:BRANDIN, Password:ANDREY

3. This will bring up the VIDEOPC desktop with the remote camera controls visible.

4. Back on the conventional systems PC, click on the icon labeled “VideoPC”. This will bring up a local Microsoft Explorer session that displays the remote camera images..

3. Viewing the laser spots

A separate remote CCD system allows one to view the East & West laser spots. To view these CCD’s:

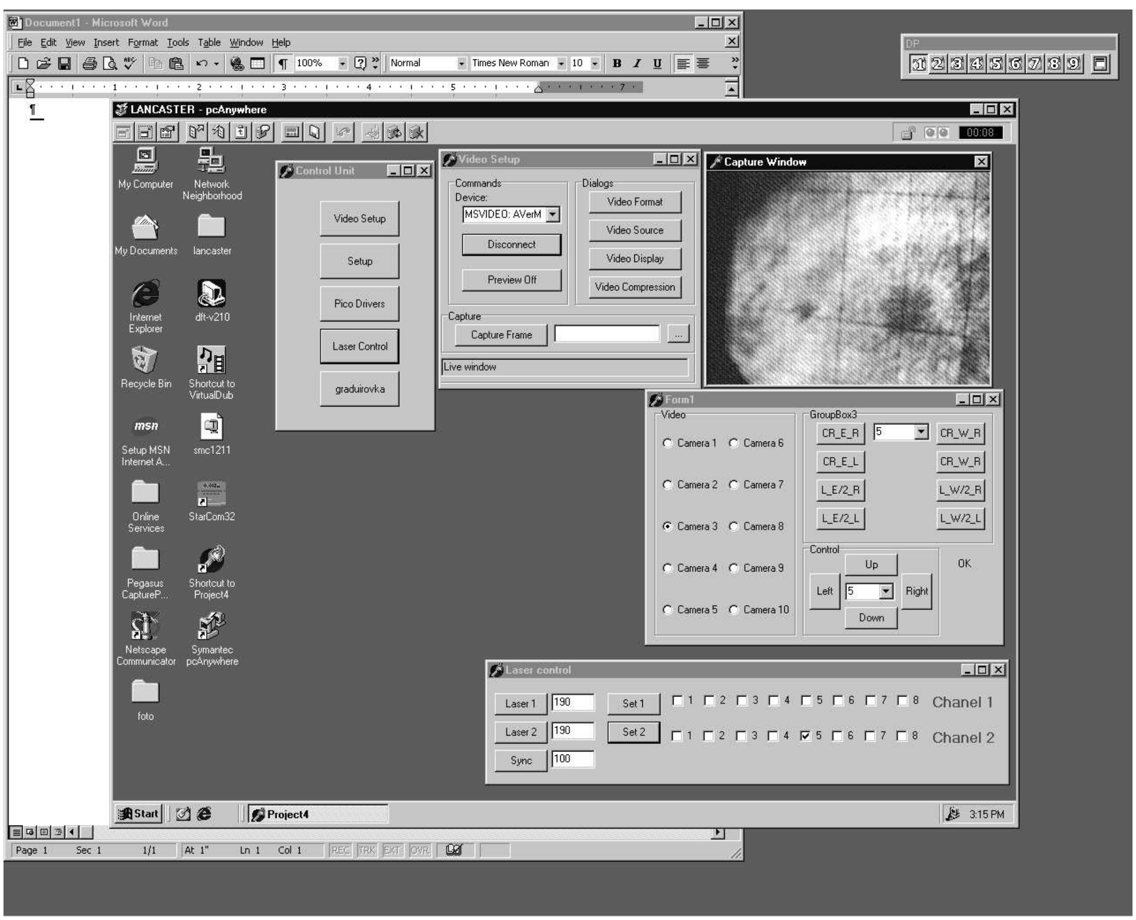
1. Go to the PC Astaire.star.bnl.gov near the TPC control computer.

2. On the desktop, double click on the icon “Symantec pcAnywhere”. After the program starts, doubleclick on the “Network” icon.

3. This will bring up a list of hosts – select “Lancaster” and click ok.

4. Login using Username:BRANDIN, Password:ANDREY.

5. This brings up the controls on the Lancaster desktop as shown:



6. In the “FORM1” window, the various CCD cameras can be selected, as follows:

Cameras 1 & 2 = West laser aimed at TPC
Cameras 3 & 4 = East laser aimed at TPC
Cameras 5 & 6 = West laser aimed at FTPC
Cameras 7 & 8 = East laser aimed at FTPC
Cameras 9 & 10 = SMD gas bubblers.

CAUTION: Do not click on any other controls in the form 1 window, or in the “control unit” or “Video setup” windows.

When the lasers are running, a somewhat synchronized bright spot should be visible on the appropriate CCD camera. Lack of a spot usually means the laser is not working.

4. Steering the lasers to the FTPC & Back

The same lasers service both the TPC and the FTPC, but not simultaneously. To steer the beams from the TPC to the FTPC:

1. In the “laser control” window, click on the windows labeled 1 and 3 in the row labeled “Chanel 2”
A check mark should appear in each window. Then click on the “Set 2” button. This sends a TTL pulse that controls flippers on the platform. Window 1 is for the east laser, 3 is for the west laser.

2. To check that the beams are now steered to the FTPC, check for the laser spots on cameras 5 & 6 (West laser) and cameras 7 & 8 (East laser)

3. To steer the lasers back to the TPC, click on the boxes 1 & 3 again. The check marks should disappear. Then click on the “Set 2” button.

5. Cycling AC Power on the WEST Laser

After running for > 30 minutes, the WEST laser sometimes spontaneously turns off. To get it going again:

1. Turn both lasers off using the TPC laser control GUI: Click “Unit 1 off”, “Unit 2 off” and “Sequence Off”. Wait for the lasers to power down.

2. On the laser video GUI on ASTAIRE: Click on window 5 in the channel 2 row on the “Laser Control” window. The check mark should disappear. Then click on “Set 2”. This should turn the AC power off to the west laser. You can confirm this by looking on the STAR plant video system at the west laser control box – the “power off” light should be dark.

3. To turn the laser AC power back on, click on window 5 (check mark appears) and click on “Set 2”. The power off light on the control box should be back on. Power the lasers back up as per usual.