Introduction to Scientific Visualization using the FSU 3D Projection System

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Overview

- Getting started
  - Hardware
  - Software
- Stereo 3D Mode
- Stereo Movies

The Workstation

- Windows XP system ("reflectance.scs.fsu.edu")
- Dual LCD Monitors synchronized with wall
- AMX Touch-Screen Controller
- Combo DVD/VCR/Cable unit
- Digital Document Camera
- 2 Laptop DVI/VGA connections

Show and Tell...


Microsoft
Windows xp
Copyright © Microsoft Corporation
DELL
Microsoft


AMX


SAMSUNG
SAMSUNG


FURMAN

Turning on the wall

- Use the AMX controller
- If it is black, hit the button
- If it says "Touch Screen to Begin...", make an educated guess.
- Hit the "Power" Button

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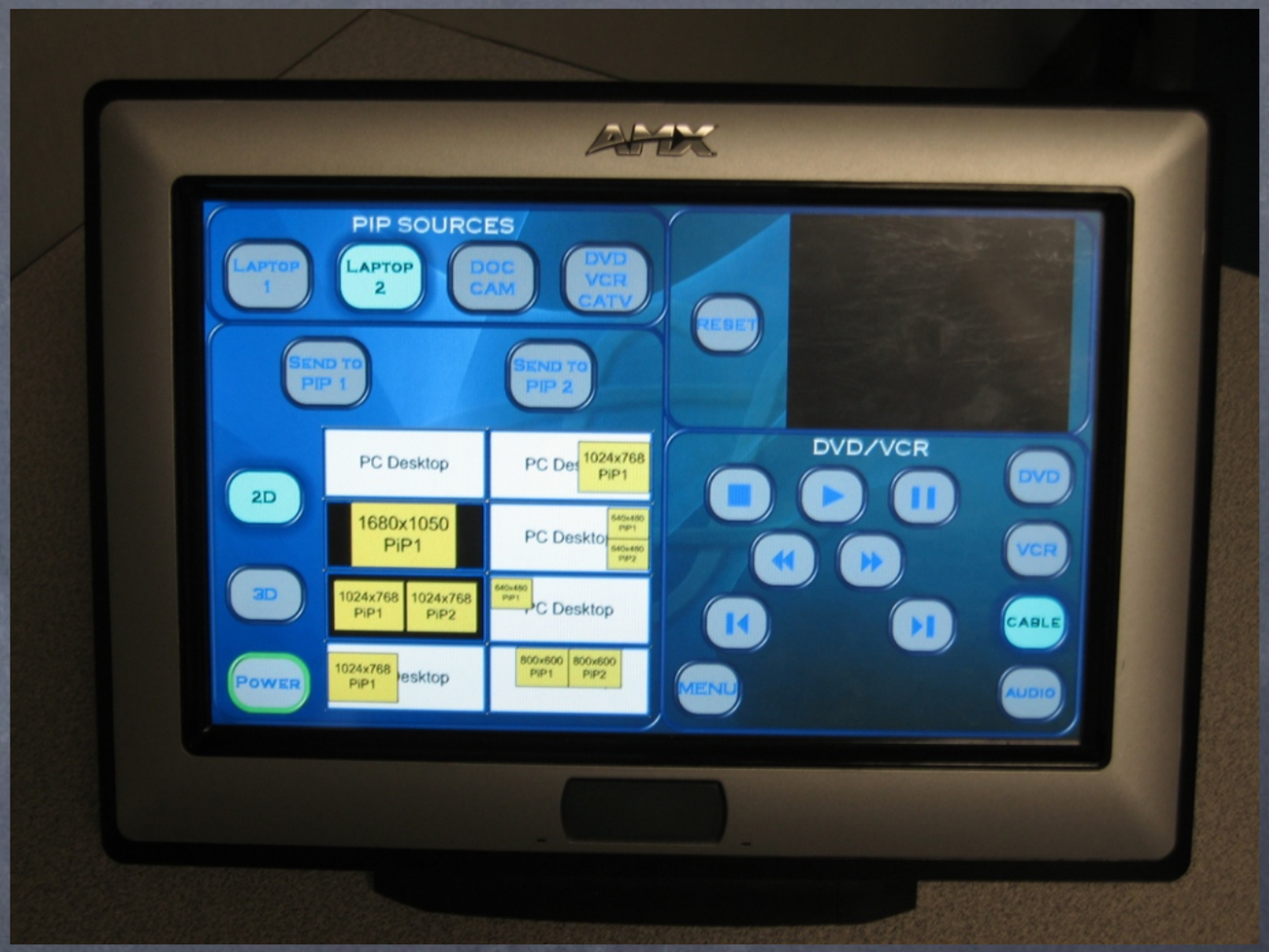

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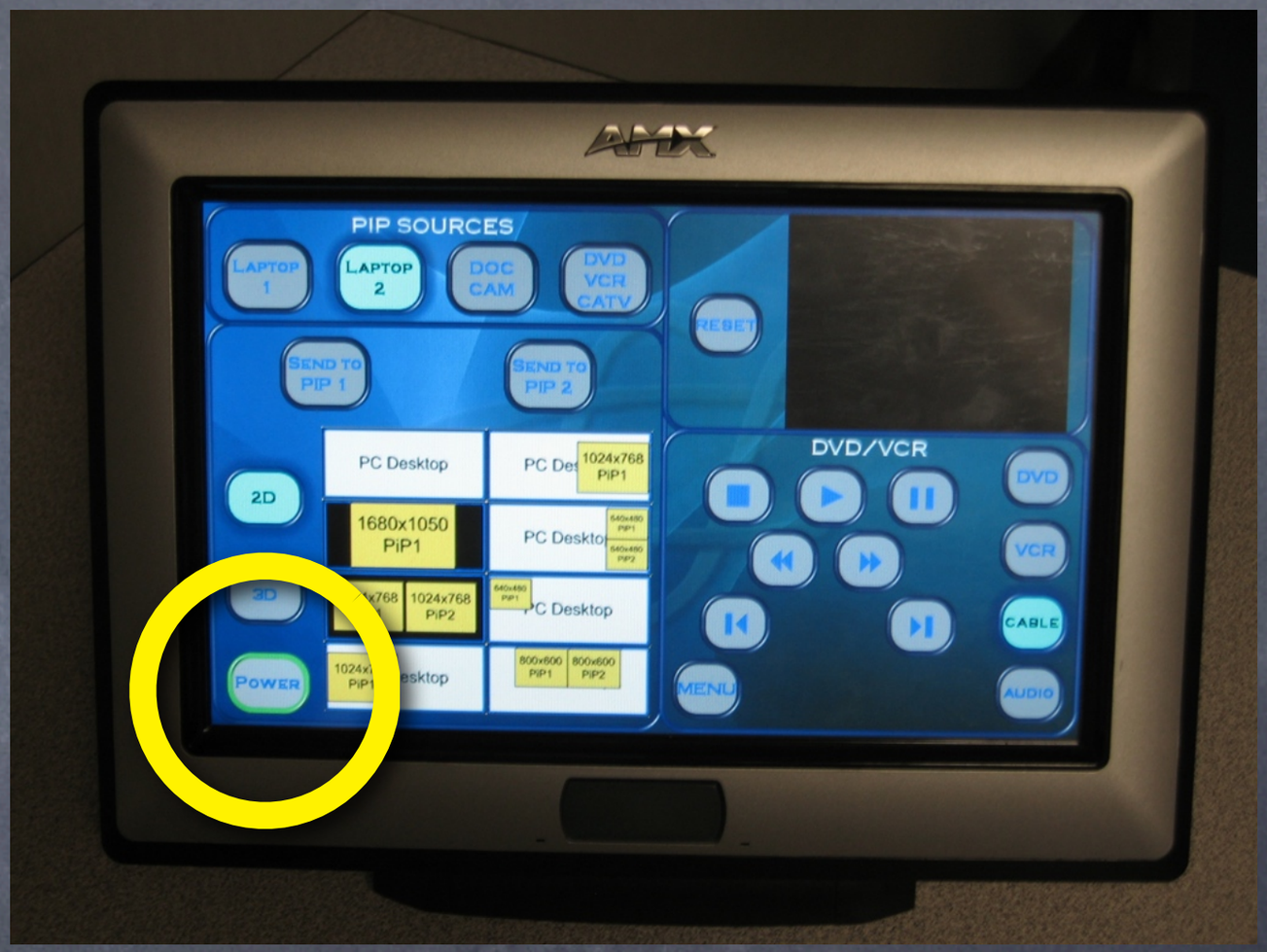
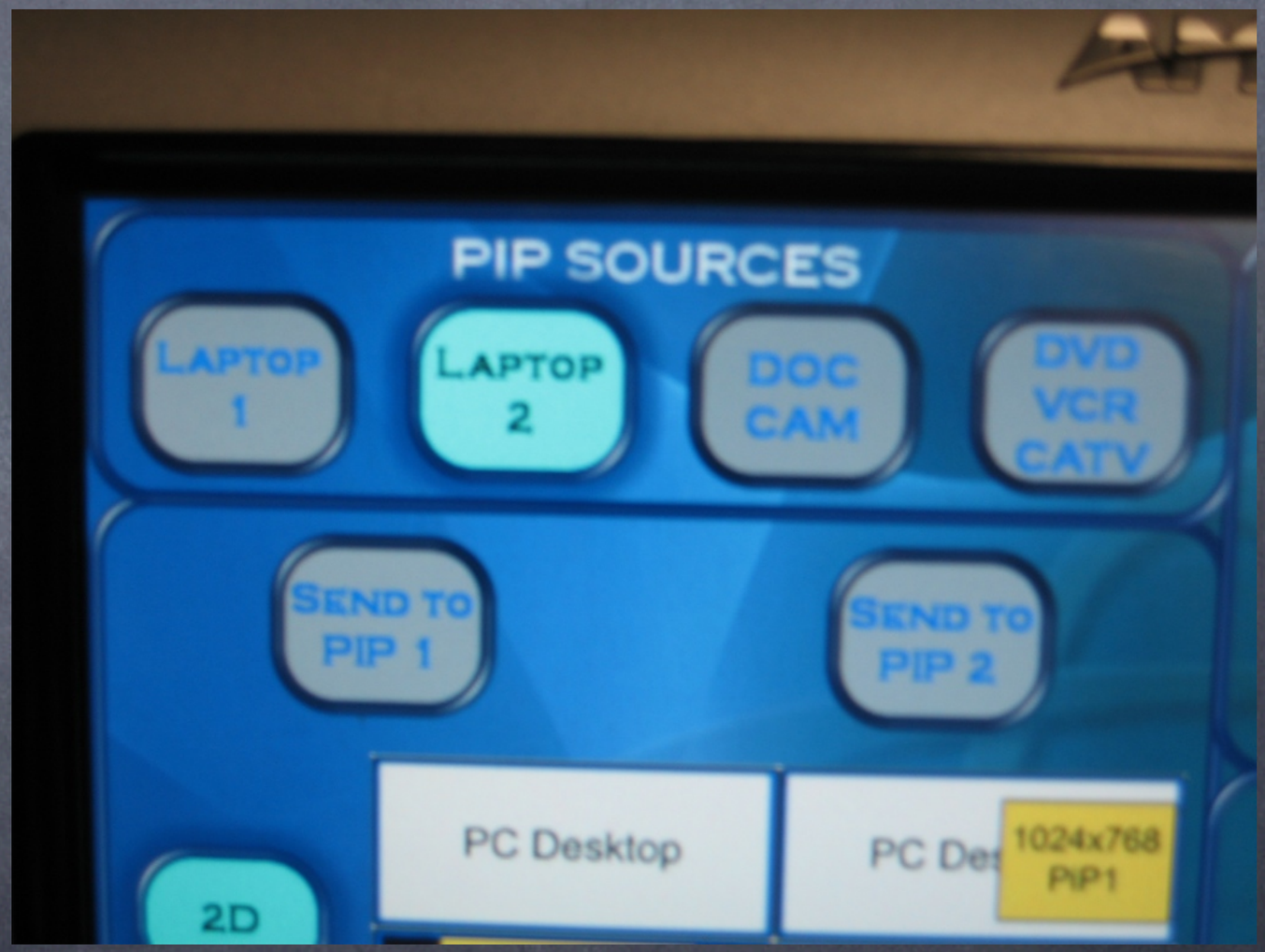


Login to "reflectance"

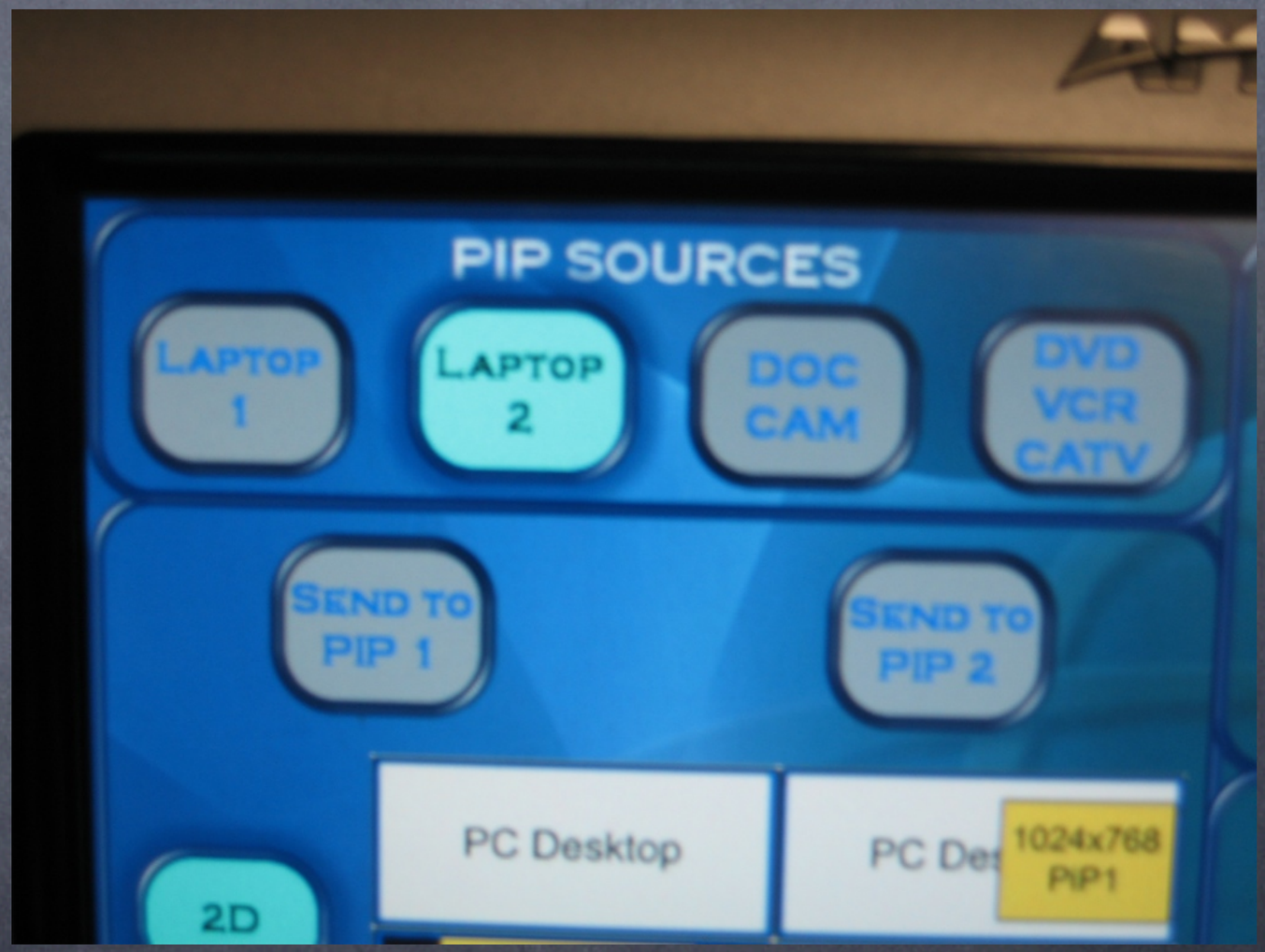
- LDAP is supported
  - Use your SCS Username and Password
- For welcome guests of SCS
  - seminar:seminar
- Files saved on the machine do not automatically copy to your SCS home directory. (Use "Secure Shell File Transfer")

Using PIPs


PIP SOURCES
LAPTOP 1
LAPTOP 2
DOC CAM
DVD VCR CATV
SEND TO PIP 1
SEND TO PIP 2
PC Desktop
1024x768 PiP1
2D

Using PIPs

- Select a Source



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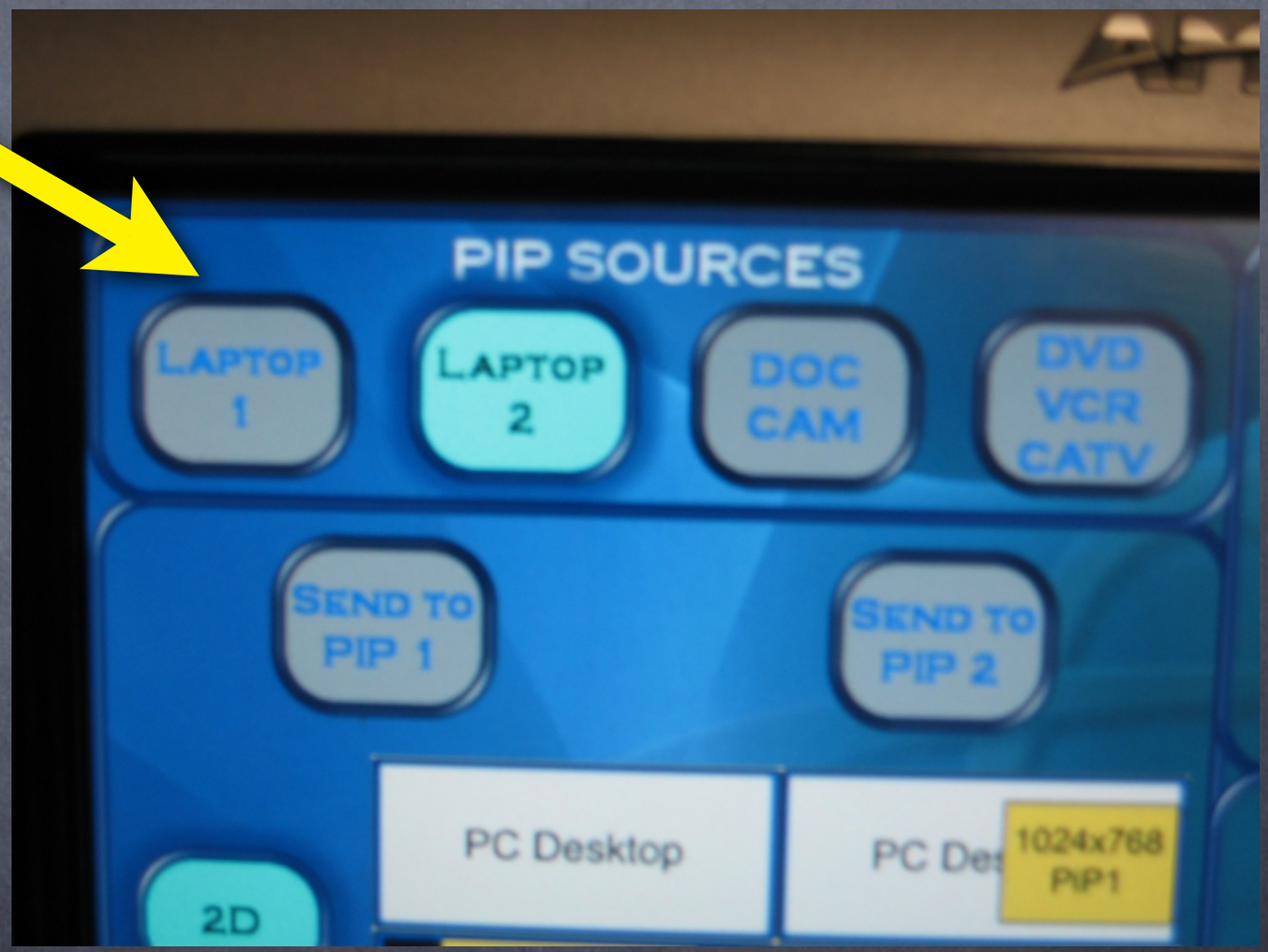

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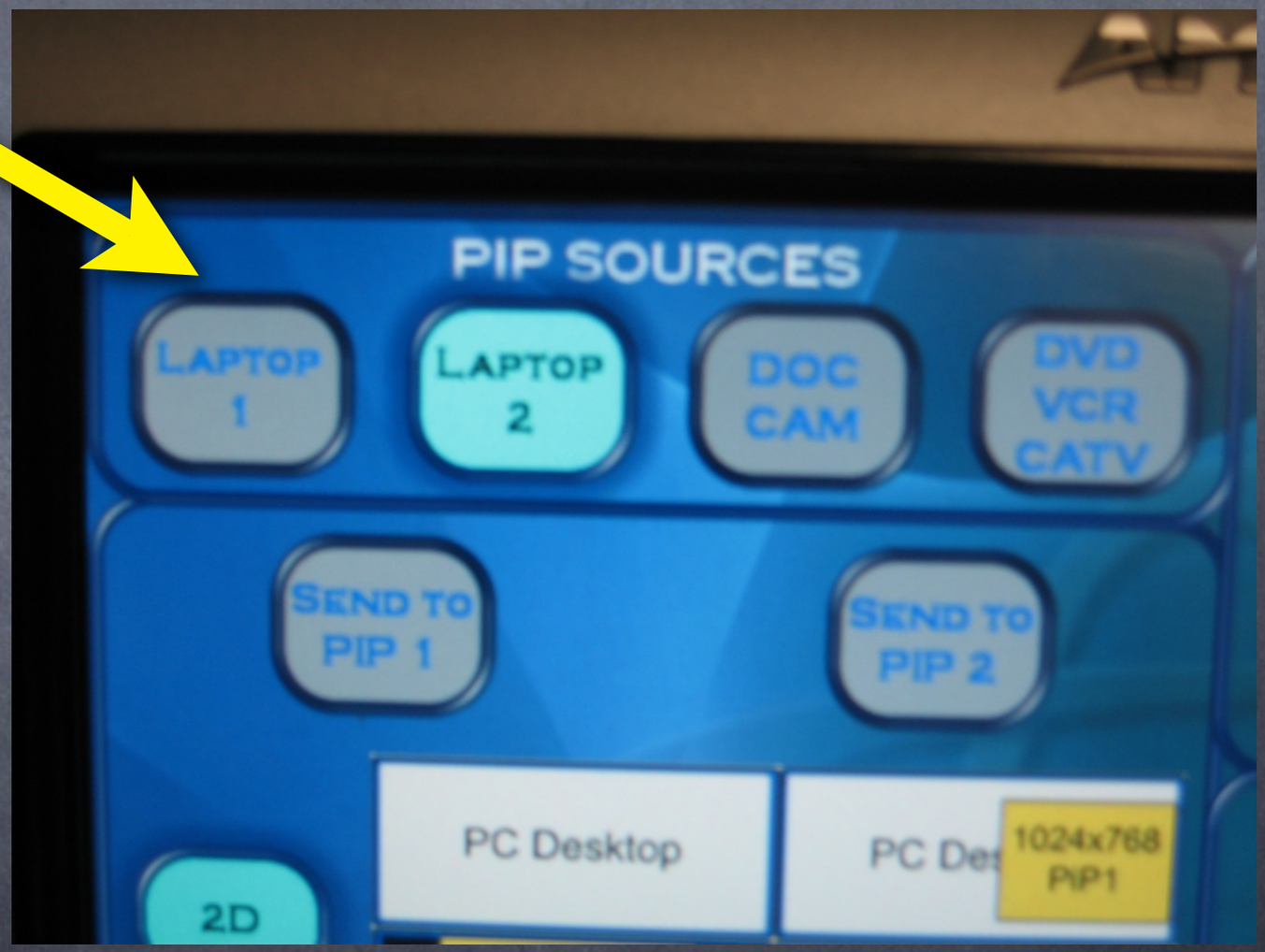

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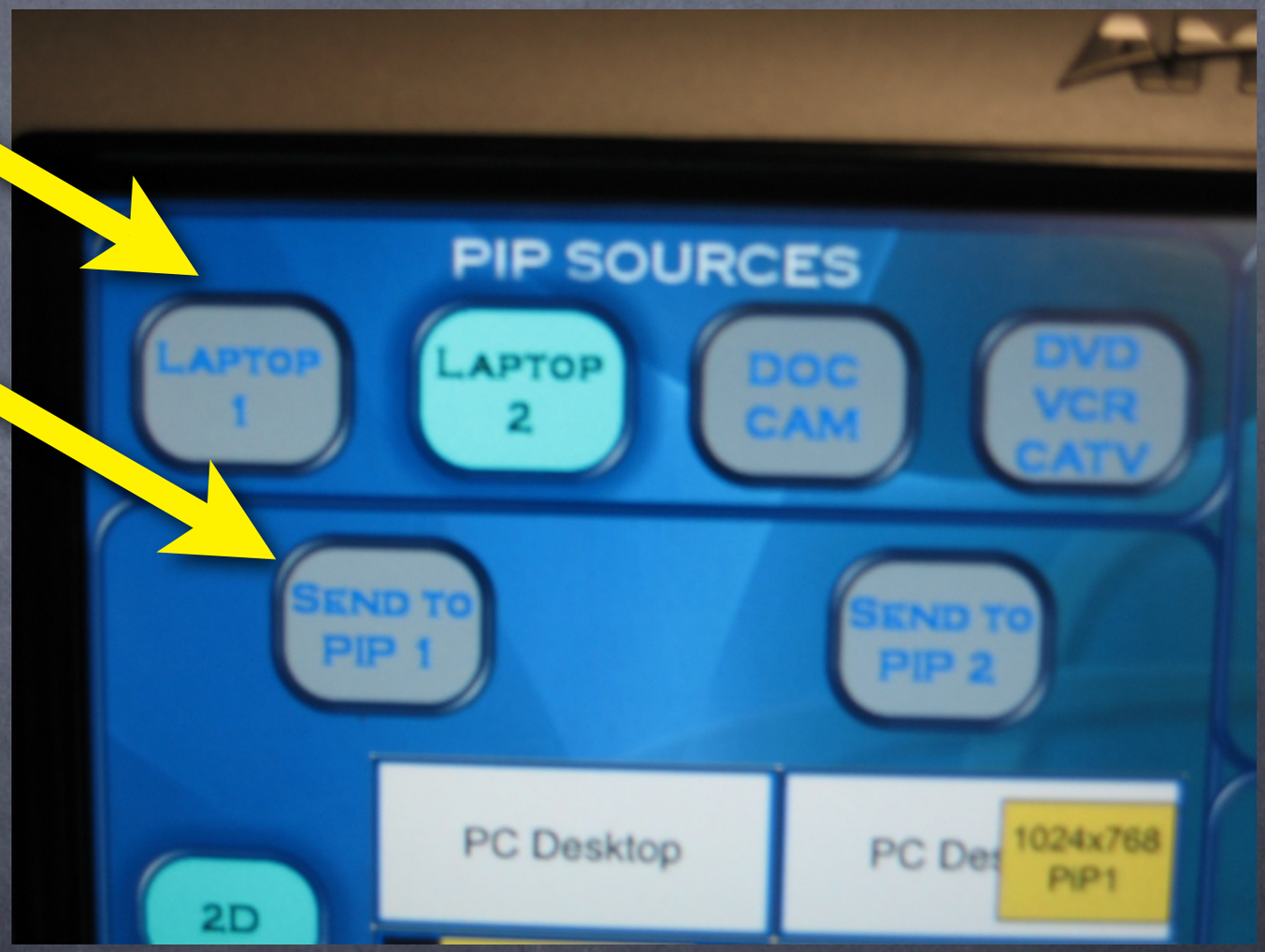
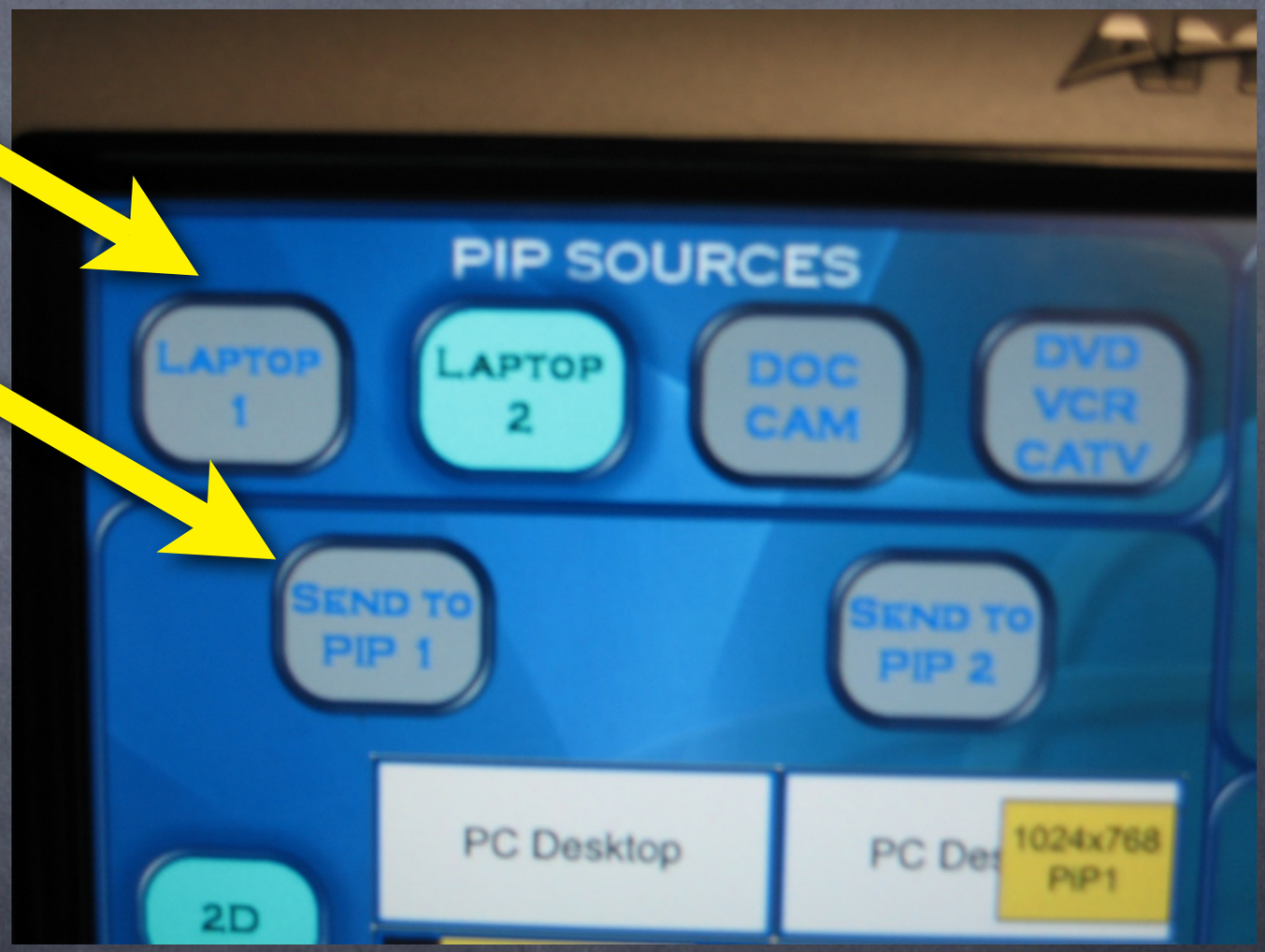


Using PIPs

- Select a Source
- Select the PIP to display the source
- Select a PIP Layout



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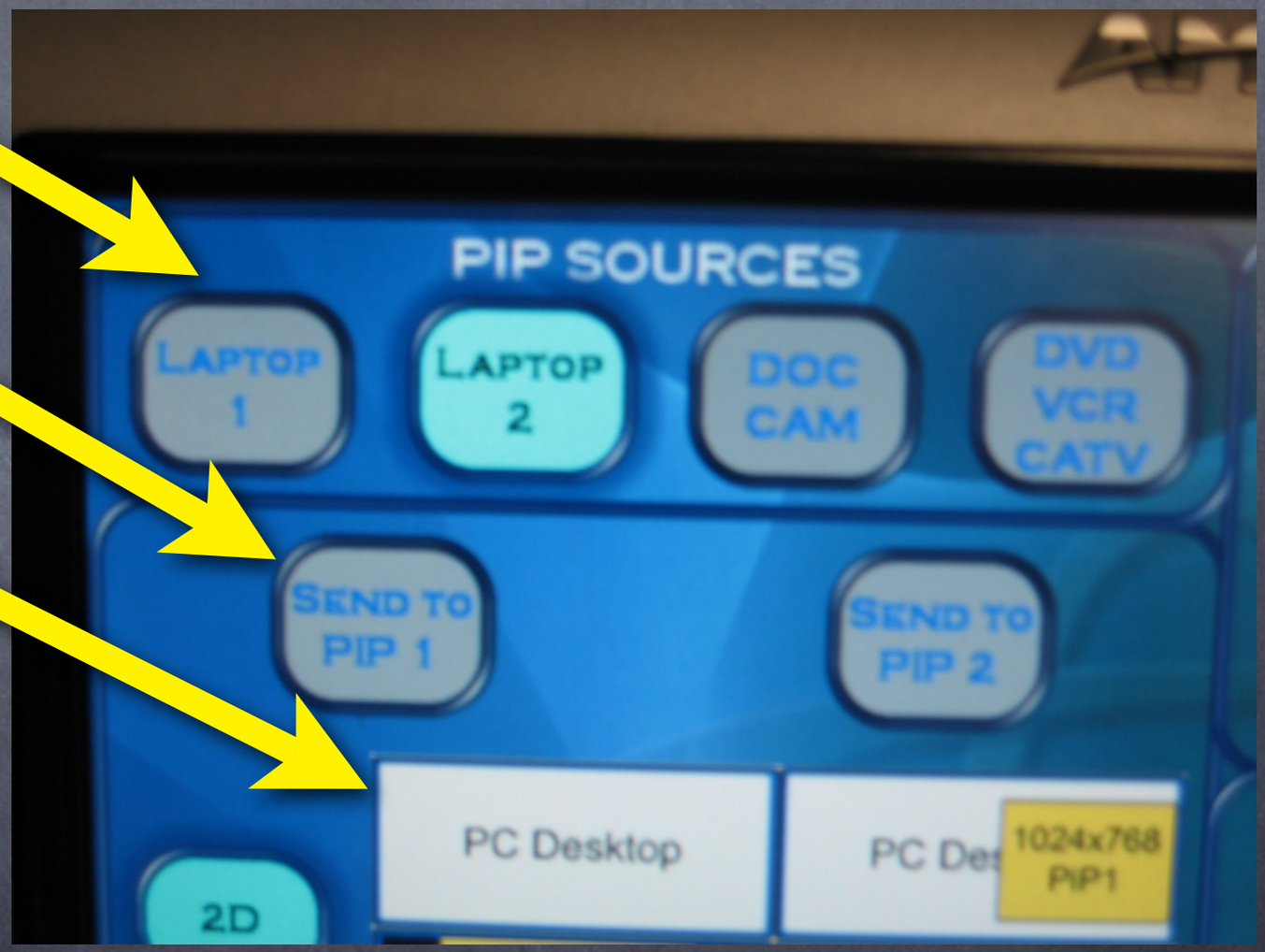

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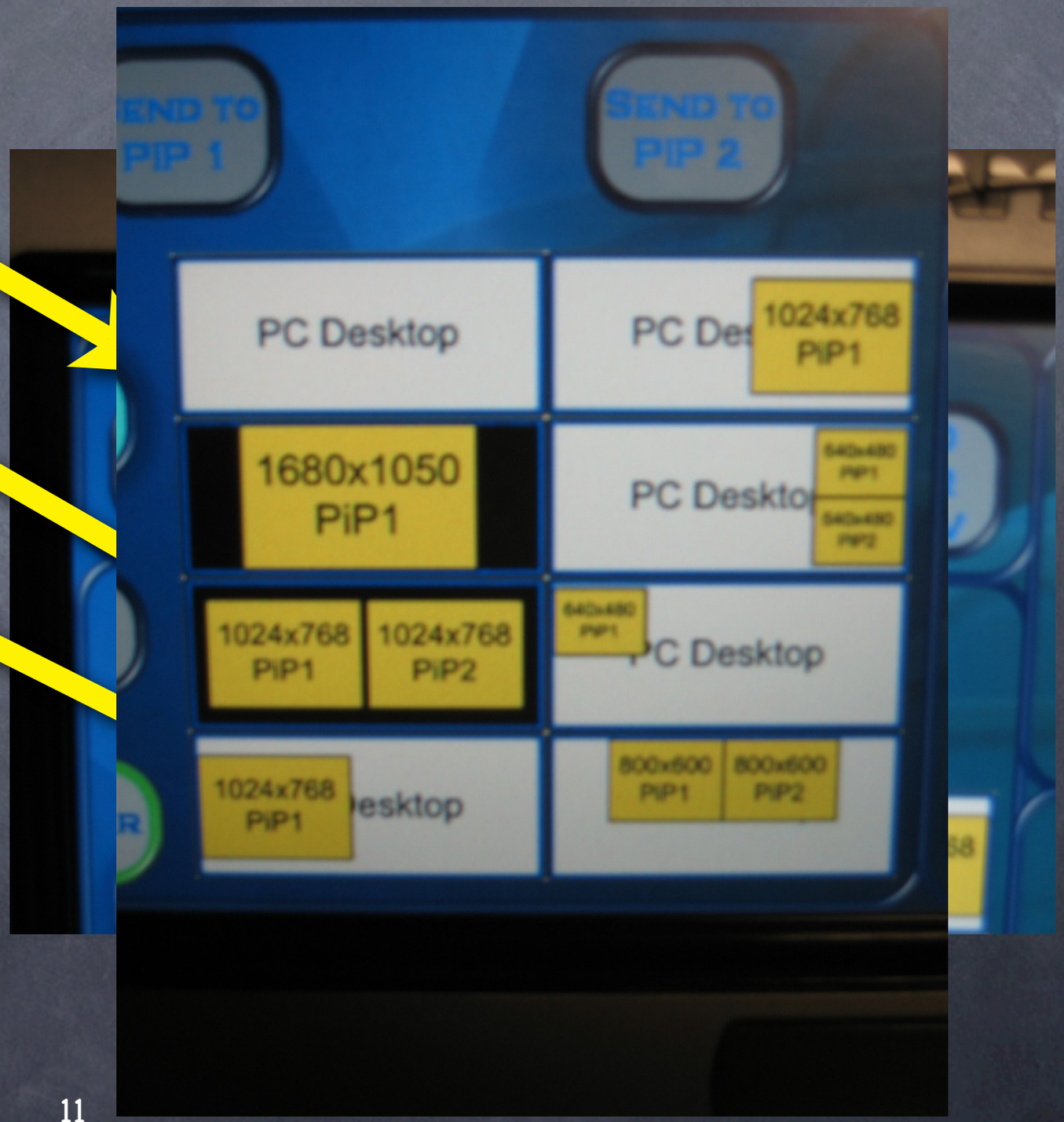
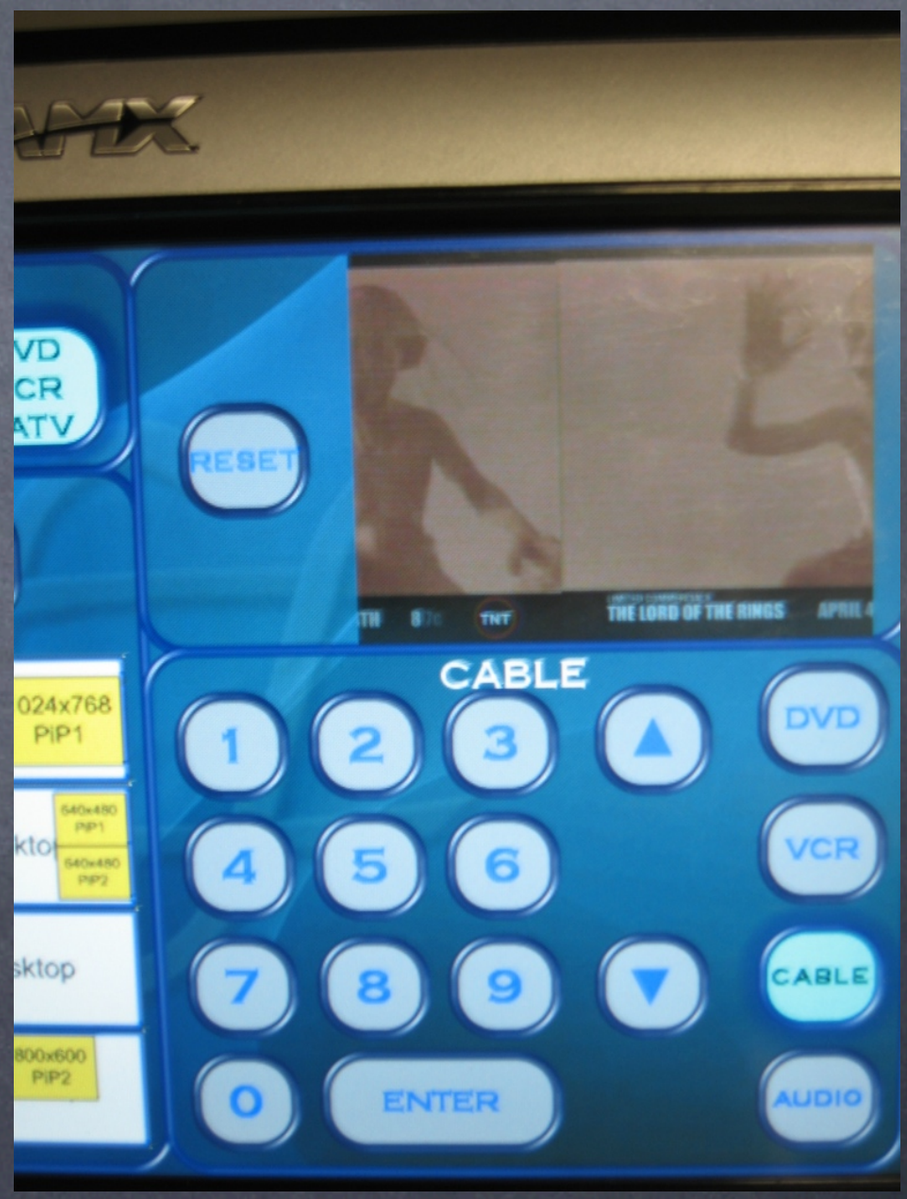


Things to Remember...

- If you use a laptop for PIP1 and select the full screen mode, you should set your display resolution to 1680x1050 at 60Hz
  - Apple users: 1600x1200 is close enough. (Force mirroring may be required)
- PIP Layouts in controller tell you ideal resolution and the PIP# that will display
- When a PIP is selected it will display on the Wall and PC Desktop Monitors

Controlling VCR/DVD/ Cable TV

- "Remote Control" is right half of AMX Screen
- Use far right buttons to select control
- "Audio" controls volume for both PC and DVD/VCR
- "Reset" to fix image in preview window



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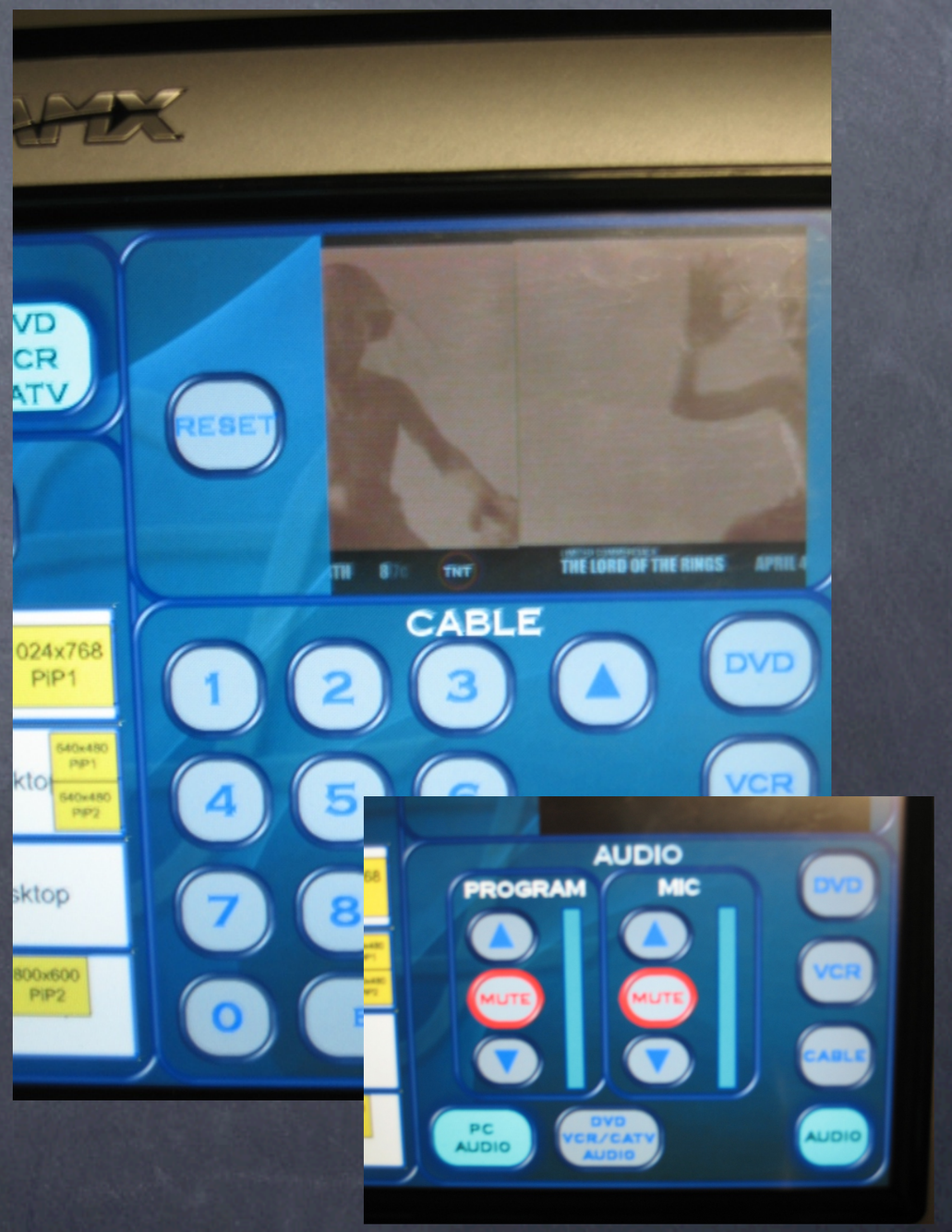

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Other Comments

- Known bug in system (we're working on it): If the menus are overlapping, press one of the far right buttons to fix it
- Either PC Desktop or DVD/VCR audio can be audible, not both.

Switching 2D -> 3D

- Hit the 3D Button
- Listen for motors (filters sliding in place)
- Stereo Applications show double; non-3D Applications are not affected
- PIPs remain 2D

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Notes on Stereo 3D

- PIP sources always appear 2D in 3D Mode
- The system cannot make "everything" appear in stereo. Applications must be designed to support "Quad Buffered OpenGL".
  - To port your applications, check out [1]
- Most applications need user to select "Stereo Mode".

Enabling Stereo in Amira/Avizo

- Easy: Run "Amira_StereoMode" from Start Menu
- Medium: Use "Stereo Glasses" Icon in Amira/Avizo. Recommended Parameters: '0.7', '0.35'.
- Hard: Type This Command In Amira/Avizo Console "viewer setStereo -m 0 -b 0.7 0.35"

Stereo In VMD

- Medium: With your data rendered, select Display->Stereo->CrystalEyes and also Display->Orthographic
- Hard: Type "display stereo CrystalEyes" and "display projection Orthographic" in the VMD console
- NOTE: If you have a saved state and want it to load in stereo, append the two commands above and add this too:
  - "menu main on"

Stereo Movies

- Export movies as:
  - Side-By-Side (L-R, R-L) [recommended]
  - Interlaced
  - Over-Under (Similar to S-by-S)
  - Left file, Right file (NOTE: 2 files)
- DO NOT export Anaglyph, playing Anaglyph in Quad Buffered OpenGL is impossible

Stereo Movies

- Playing Movies
  - Easy: Stereoscopic Player from the Start Menu
  - Medium: StereoMovieMaker from the Start Menu
- Editing Movies (i.e. splitting/merging L-R)
  - StereoMovieMaker
  - Other software available on the web

Resources

- [1] Stereo Geometry in OpenGL, http://www.orthostereo.com/geometryopengl.html
- SCS PowerWall FAQ, http://www.scs.fsu.edu/twiki/bin/view/Computing/VislabPowerWall
- I will post these slides on the Twiki and http://www.scs.fsu.edu/~bollig (follow the links)