

## VCC-102 Video Convergence Camera Has the ability to run two cameras at the same time.

In talks with field technicians that have installed digital cinema projectors, the most common comments were how difficult aligning the convergence pattern was. The technicians asked if there were any tools that might make this task a little easier, and if there was not, would USL, Inc. be willing to come up with some type of alignment tool? With this request, USL, Inc. took its vast knowledge of the cinema industry and came up with an economical piece of test equipment that greatly assists technicians in the field when setting up new digital cinema projectors.

The VCC-100 was the first incarnation of USL's Video Convergence Camera. The

VCC-100 version of software was capable of running one camera at a time. This was very useful, yet the ideal situation called for two cameras to run simultaneously. The newest version, the VCC-102, has the ability to run two cameras at the same time, thus improving the technician's abilities in aligning the digital cinema projectors.

When aligning a digital projector, a cinema technician needs to adjust the video convergence pattern to make sure the projector is in proper focus. The video convergence pattern consists of red,

green, blue and white pixels in a cross hair pattern displayed at different points on the cinema screen. The VCC-102 precisely images the convergence pattern on a movie screen. The image can be from 20' to 150' away and is displayed on a laptop screen. By utilizing this device the digital cinema technician can place his laptop next to the video projector and see the convergence pattern as he makes the adjustments.

The cameras are powered by the USB ports on the laptop and the units come with a GUI (graphic

user interface) that allows optimizing the image quality.

A top mounted laser enables the technician to quickly locate the pattern on the cinema screen and the front adjustment ring enables a very precise focus. The unit mounts on a standard 1/4 -20 threaded tripod. The VCC-102 uses a SXVGA sensor that is capable of



VCC-102 Video Convergence Camera

delivering video images up to 1280x1024 pixels.

There are two important factors, one it's being used in very low light conditions and the required PC hardware to support two cameras. The current configuration is 800x600 pixels at a frame rate of 7.5. The VCC-102 Windows application configures the camera for night mode with other parameters to optimize the video for it's application (projector convergence calibration).

The VCC-102 Camera is designed to zoom in on an image being projected on a screen at a distance equal to the length of the auditorium. Typically the camera is located near the projector and with the telephoto lens, the convergence pattern is clearly seen in the Windows application running on the PC.

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# PCA-100 Projection Color Analyzer

In 2004, USL, Inc. developed the **PCA-100, Projection Color Analyzer**. This analyzer was designed to assist the cinema technician with the alignment of digital cinema projectors. The **PCA** measures the color and brightness characteristics of light reflected from a cinema screen. It provides an accurate reference for the color balance of the digital cinema projector. The color values (chromaticity) values are displayed on the laptop computer screen and may be saved and printed out for future reference. The **PCA** provides highly accurate measurements.

When setting up a digital projector, a color meter is necessary for proper alignment. Digital files do not have lab color balancing in post-production, as film prints do, so the calibration must be

done at the projector. With its precision spectrometer, the **PCA** digitizes the incoming light to extract the colors and generate chromaticity values. These values are displayed as luminance and chromaticity on your laptop. The **PCA** also boasts an optical viewfinder that shows the area to be measured. The **PCA** has an adequate luminance range to measure the projector's contrast ratio.

When the **PCA** was developed there was no RoHS (restriction of hazardous substances). After the RoHS standard was implemented, USL needed to update the **PCA** to meet the new requirements. In doing this the unit physically changed in size and parts required to meet RoHS. This process took some major effort on behalf of the engineering team yet the results are well worth the effort put in.



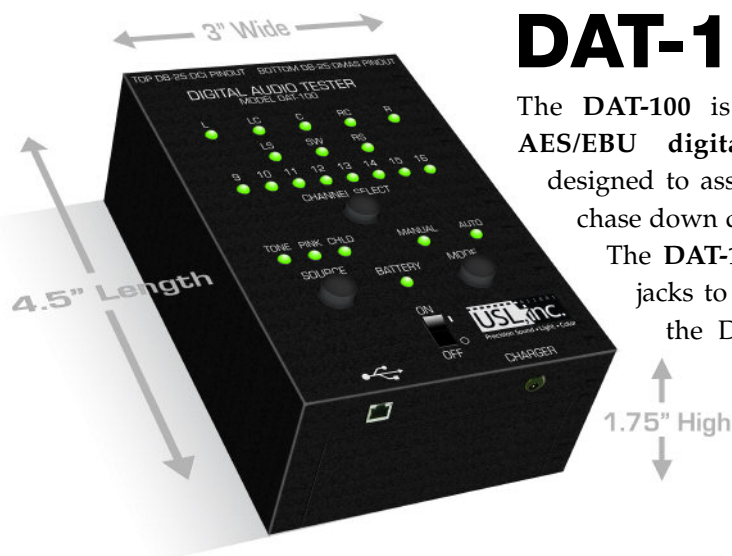
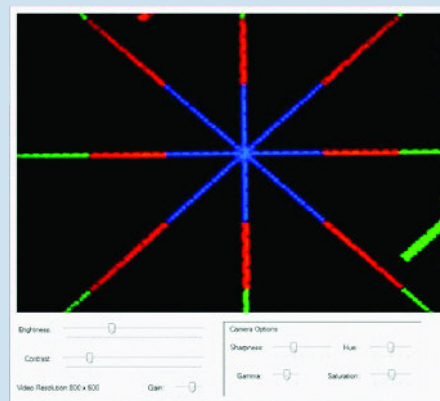
*PCA-100 Projection Color Analyzer*

Because technicians cannot fix what they cannot see, the **PCA** has proven to be an invaluable diagnostic tool.

## VCC-102 (Continued from cover article)

At USL a digital projection room is used for testing and demonstrating our products, along with a number of theaters that participate in testing various products. The USL projection room is about 8.5 meters and as shown below is a screen capture of the

projected test pattern with the camera located on a tripod at rear of the room. It should be noted that the amount of light has been substantially filtered to create very low light conditions in the room, and yet with the **VCC-102** the following image can be seen.



## DAT-100 Digital Audio Generator

The **DAT-100** is a simple handheld **AES/EBU digital audio generator** designed to assist cinema technicians chase down digital audio problems.

The **DAT-100** has 25 pin output jacks to drive equipment with the DCI or DMA-8 digital audio pin-out. Substitution of the **DAT-100** for any

AES/EBU source allows the technician to determine if a problem is in the source, the destination, or the cable between the two. The **DAT-100** may also be used for a quick check of downstream equipment such as crossovers, power amplifiers, speakers, and speaker wiring. If the audio is heard in the auditorium, the equipment is working properly.

# The D2 Acoustical Measurement System

The popular AcoustX **D2 Acoustical Measurement System** is one of the most comprehensive tools ever developed for sound technicians to evaluate and adjust sound in cinemas. This powerful, portable system has all the features field technicians need to get their jobs done quickly and accurately.

With its development building on many years of audio and cinema experience, the **D2** is both theoretically sound and in-the-field practical. It is lightweight, but sturdy and well built, so it can be used in the field with confidence.



*The D2's features a computer-controlled multiplexer, custom built for AcoustX by USL*

The system can do four microphone multiplexed room response measurements utilizing individual microphone calibration files and gain leveling for greatest accuracy. Automated four-microphone NC and RT60 testing are available. A software

toggled relay allows the **D2** to control the pink noise on the cinema processor. The system can also perform a full optical A-chain alignment using the built-in audio frequency oscilloscope.

One of the **D2's** key features is the computer-controlled multiplexer, custom built for AcoustX by USL. "We went to USL for our Plexer because they are one of the most respected companies in the industry and it gave us a great platform to start with," said AcoustX President, Tim Holmes. Before founding AcoustX in 2003, Tim was Manager of Engineering for Lucas film's THX Cinema Division and a key developer in the THX analyzer project.

The **D2** incorporates Sound Devices' USBPre2 digital audio interface, which is also recognized throughout the industry for its quality and reliability. Its compatibility is verified for use with win | RTA.

The **D2** utilizes rugged, low diffraction, electret condenser microphones for accurate, repeatable measurements. These are calibrated against a Bruel & Kjaer® 1/4-inch measurement microphone. Lightweight, collapsible stands are included.



The powerful, yet easy to use software runs on Windows XP/Vista/7.

Main response screen:

- Background noise measurement:
- Reverberation time with recommended limits
- Optical A-chain alignment

*The D2 is available from:*

**AcoustX**

122 Calistoga Road #318

Santa Rosa, CA 95409

Tel: 707-537-1310 Fax: 707-637-8654

[www.acoustx.us](http://www.acoustx.us)

## Outstanding Employee, Eneida Vega - June 2011

Karen Layland, our *Accounting Manager* pleased to present the **Outstanding Employee Award** to Eneida Vega this past June. Twice a year, our staff members come together and choose an individual who they feel has contributed the most to our company. Eneida has certainly earned this honor. Since joining USL in the summer of 2009, she has consistently proven herself to be a very valuable employee. Eneida is responsible for producing every packing slip, invoice, and receipt that pertains to our daily sales activity in the accounts receivable department. Over the past year, USL has experienced a tremendous growth in sales

and Eneida has welcomed this challenge with open arms. Along with her A/R duties, Eneida helps out with the phones, keeps our kitchen fully stocked, takes the Ultra pups out for walks and somehow finds the time to coordinate the daily staff lunches. We are very proud of Eneida, as well as all of our very hard working employees. In fact, nearly half of our staff members have been with USL for over 10 years and several of those members are actually nearing the 20 year mark with the company. Congratulations again, Eneida!! Job Well Done!!



# MMP-10 Microphone Multiplexer

Small lightweight and affordable, the MMP-10, four microphone multiplexer makes tuning a room simple, fast and easy. The MMP-10 connects easily with most industry standard analyzers. Included in the unit is a momentary switch, which allows the user to utilize each microphone individually or sequence all four microphones at the same time. The unit runs on a 9V battery and has a "low battery indicator" that lets

you know when it is time to change the battery. All MMP-10s are factory calibrated. Trim pots inside the unit allow the technician to adjust the individual microphone levels, frequency of the scan rate, high frequency level and overall level adjustment.

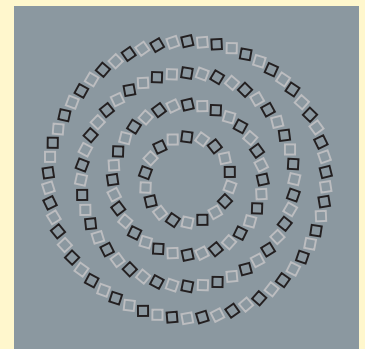


## ShowEast Ad Campaign

ShowEast in Miami, Florida is the venue for our latest ad campaign to hit the trade magazines. With the corporate ad and product ad featuring the DAX-602, DAX-202, ECI-60 and JSD-100.



## FUN ILLUSION



These are 4 concentric circles believe it or not!



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