Next Generation Broadcast Camera Systems

Designed for the Field, Studio, Stage & Today’s Challenging Production Environments
Cornerstone Technologies Delivers Live, Multi-Cam Coverage of Concerts and Corporate Events with Panasonic AK-UC3000 4K/HD Cameras

On the majority of jobs, the UC3000s output 1080p for IMAG projection, but capture in 4K for post-production. Recent UC3000 projects at Cornerstone have included a John Mayer concert, keyboardist/composer Kurt Bestor’s Christmas concert, the Young Living Film Festival.

In the Future
For Now & Into the Future
Panasonic 4K and HD Studio Camera Systems

INNOVATION FOR YOUR FUTURE
Panasonic has always believed in the future. Our Large Single Sensor Internal Enlargement Lens (LSIEL) system delivers the sensitivity, dynamic range and color reproduction of our latest large sensor 4K/HD camera technology and the convenience and operator familiarity of standard 3” 2/3” optics. You get the latest in an HD HDR image performance but experienced broadcast camera operators need not change any long learned techniques.

UNPRECEDENTED HD PERFORMANCE
Superb HD performance for the price value. 1080p at 1080p applications including 24p production. The AK-UC3000 will fit in any HD applications with exceptional image quality and unprecedented image control including new on-sleeve detail and gamma features.

FLEXIBILITY TO SUPPORT ANY TECHNOLOGY CHANGES TO COME
The UC3000 studio camera system is capable of handling standard definition signals, allowing you to stream both HD SDI and HD/SDI to different endpoints. The same is true for HDR. This allows you to select the video output based on your specific venue or broadcaster.

The UC3000 has been specifically designed with operator ergonomics in mind. The shoulder pad can be adjusted to increase camera balance on account of lens weight changes. A field-tested low-profile camera body design increases operator visibility and helps create a low center of gravity.

Two single mode fiber links from the Camera to the CCU can be made using the UC4000, UC3000 or HC5000 camera in conjunction with the Transmitter system. In addition to 1080p, the AK-UC3000 will also produce 720p or 1080i with performance levels not seen before.

HDR
Many broadcasters are considering the ability to deliver an HDR production with the impact of HDR and the bandwidth of HD. The AK-UC3000 is the perfect camera for this type of production.

NEW! AK-UC4000
Superb 4K & HDR Capable Camera with HD High Speed

INNOVATION FOR YOUR FUTURE
Like the AK-UC3000s AK-UC1000s utilize the Large Single Sensor Internal Enlargement Lens (LSIEL) system but with a larger imager with 4K/HD imaging for improved resolution, improved color performance and 14 stops of dynamic range. With the AK-UC4000s the LSIEL system delivers even more sensitivity, dynamic range and color reproduction and maintains the convenience and operator familiarity of standard 3” 2/3” optics. You get the latest in 4K/HD image performance but again camera operators need not change any long learned techniques.

TWO CAMERAS IN ONE
When in the HD operation mode, the AK-UC4000 is capable of 4K high speed for some motion playback just as the 4K-HC5000 did and the option to shoot 24p or 30fps high speed and you get more playback server compatibility.

V-LOG OUTPUT MODE
The UC3000 V-Log output mode delivers a full 14 stops of dynamic range and 4K-Samples for next generation performance of Panasonic 4K/HD studio cameras. This V-Log output mode essentially/nice the same workflow as the for 4K and 4K cameras, allowing it an approved camera for Netflix productions.

The UC3000s represent a critical first step towards 4K production for the company’s diverse rental/staging clients. We like the camera’s colorimetry and have really come to rely on the UC3000’s ability to simultaneously support 4K and HD acquisition.”

Scott Evans, Video Department Head of Cornerstone Technologies
RIT has recently upgraded its production studio with the addition of Panasonic AK-UC3000 4K/HD studio camera systems and AW-HE130 pan/tilt/zoom cameras. The studio features six AK-UC3000 4K/HD camera systems as main cameras, ten AW-HE130 FHD pan/tilt/zoom cameras and several LCD broadcast monitors for production, engineering and camera shading. All operate under in-arena IP control, complementing these cameras’ capabilities.

For more than 15 years, Rochester Institute of Technology has aired SportsZoneLive, first as a weekly half-hour show showcasing the university’s athletic programs, then expanded to broadcasting live sporting events (including Division 1 Hockey) in conjunction with Time Warner and now the CW Network. (RIT has also added a live pregame show and streams multiple RIT sports via its OTT platform.) James Bober, Assistant Director/Chief Engineer, University Production Services, Marketing and Communications Division, had assessed that after close to a decade of “robust performance” from RIT’s prior generation of Panasonic cameras, there was a need for a broadcast solution that would prepare the university for eventual 4K production.

"The UC3000 camera system – supporting both 4K and HD acquisition – is an excellent fit for our educational environment, which demands longevity from our equipment investments,” said Bober. "And because the UC3000’s built-in optical conversion lens allows standard 2/3” B4 mount lenses to be used, we have been able to re-purpose all our HD glass on the new camera bodies," he continued. “We can enjoy the economies of a staggered implementation of cameras and lenses as we move towards full 4K production.”

Bober explained that during games, all six UC3000s are set up in manned studio or handheld configurations throughout the campus’ new Gene Polisseni Center, a 4000+-seat multipurpose hockey arena. While each of the cameras is capable of wired operation, one UC3000 is deployed as a wireless RF cam using an IMT integrated microwave system.

Bober said that with two control rooms – one for in-house video, the second for TV broadcasts – camera resources can be simultaneously shared. For instance, many of the PTZ cameras perform dual roles depending on the needs of two different directors. Many of the cameras have significantly different assignments contingent on whether the situation is game play or between game periods. To accomplish the multiple implementations, RIT has separate robotic camera control stations that are program-specific and can control all the PTZs simultaneously. "It’s challenging for the manned camera ops but the UC3000’s multiple intercom channel capability allows both control rooms to communicate with camera ops based on need," Bober noted.
For the past 10 years, Redemption Church’s Media Director Joe Hayes managed a 720p infrastructure driven by Panasonic AG-HPX500 P2 HD camcorders. “The HPX500s had served us well but they were aging, and we wanted to upgrade to 1080p,” Hayes says. “But 4K was staring us in the face. Future-proofing acquisition was very important — we didn’t want to have to switch up cameras in three years.”

He found his camera solution in the UC3000, which features native 4K acquisition with simultaneous UHD/HD output. “With the UC3000s, we developed two concurrent technology platforms, one sending 1080p to the TV side of our operations, the second outputting 4K through our 4K production switcher to the RQ32K (30,000 lumens 4K+ Laser Projector), which feed two 21’W by 12’H IMAG screens on either side of the sanctuary stage. Center stage are 300 LED panels that are fed a variety of custom content.”

In terms of placement of the UC3000s, two are used on tripods in the sanctuary as the main cameras, two are used handheld, and one is used on a 30’ jib stage left. The church continues to use one HPX500 on a 30’ jib in the crow’s nest (and up-converts to 1080p) and one AG-HPX170 1080p handheld P2 camcorder on a Steadicam.

Redemption continues to send a 720p signal out of the building to its satellite churches, Spanish feed and Facebook Live, but plans to upgrade to 4K as soon as feasible. The church’s services are seen on several television networks – worldwide Christian broadcasters including Trinity Broadcasting Network, Hillsong Channel and Daystar – and that content is distributed in 1080p. The Panasonic AV-HS6000 2ME production switcher is utilized for the TV broadcast.

Systems integrator AE Global Media, with a team led by company CEO Donnie Haulk, designed and built the infrastructure and AV systems for Redemption Church.

“Creating an intimate worship environment in a large space and having it translate accurately across broadcast and social media video formats was the biggest challenge,” Haulk notes.

“The visual intimacy that we achieve with the Panasonic laser projectors helped us reach the desired goal. Pastor Ron is a very expressive communicator and his expressions as well as body language are key factors in his delivery of Pastoral Ministry.”

“Redemption is the only church in America worshiping the way they are, with combinations of resolutions: 4K for their live worship experience, then having HD broadcasting with social media, the major networks and the internet.” Haulk adds.
Some things do last forever, such as American audiences’ abiding fascination with Divorce Court, a nontraditional television court show that revolves around settling the disputes of couples going through divorces. For this, its 20th “Platinum” season, Divorce Court – television’s longest running court program – has moved across the country to Atlanta’s Tyler Perry Studios, and is being shot live-to-tape with Panasonic’s new AK-UC4000 4K/HD HDR-capable camera systems.

The current edition of Divorce Court premiered in September 1999, and is conducted as an arbitration-based reality court show presided over by Lynn Toler, a former municipal court judge. The series is produced by Lincolnwood Drive, Inc. and distributed by 20th Television.

Six AK-UC4000 cameras, along with the model’s companion AK-UCU600 camera control unit, are utilized on this season’s production, which began over the summer and will continue through most of the fall. Episodes of the 20th anniversary season are already in syndication. According to the series’ longtime director, Eddie October, “During this milestone season, we’re excited to show off our new set and new look, and these Panasonic cameras really make it look amazing – they’ve raised the bar.”

Lincolnwood Drive rented the camera packages from TV Pro Gear (Glendale, CA), whose Senior Vice President Ivan Gonzalez is the liaison with the production. “Divorce Court 2018 has a brand new white set, it does not look like your average courthouse,” Gonzalez said. “The cameras look amazing in low light – I was a bit anxious about the white set and talent but the UC4000 is able to isolate the colors without bleeding or bounce on the white.”

Low light and exceptional color performance have become a calling card for Panasonic cinema cameras and the AK-UC4000 shares in this. Unlike most native 4K broadcast cameras, the UC4000 does not suffer from a loss of sensitivity and dynamic range from the reduced pixel size required for 4K (even shooting HD), because the camera resizes the 2/3” 4K Image from the B4 mount lenses to a large cinema style sensor.

TV Pro Gear’s Gonzalez noted, “The production is shooting at 1080i 59.94; we do live to tape and iso all of the cameras for post to add graphics or fix minor issues.”

Emmy Award-winning Lighting Designer Jeff Calderon, Vice-President of Academy Lighting Consultants (Burbank, CA) – who is commemorating his own and his company’s 20th season with the show – explained that, in terms of camera placement, one UC4000 is locked-off on the show’s bailiff, one camera is placed on a jib for variety shots, three cameras are outfitted with long lenses to cover the judge and litigants, and the sixth camera is utilized for “director’s choice,” e.g., zooms, relationship shots, witness close-ups.

Calderon said, “We typically shoot 10 cases a day, and the UC4000s are certainly up to that demanding schedule. The cameras performed well right out of the box and beautifully compliment our new all-LED lighting rig. We are going for the warmer colors on the new white set so we shoot and light the set at daylight color temperature. This helps those warmer ambers really pop on the set without sacrificing any of the warm close-ups that have been a signature look for the show. I couldn’t be happier with these new cameras.”

Panasonic’s AK-UC4000 4K HDR-Capable Camera Systems Chosen to Shoot 20th Anniversary Season of Divorce Court

“The UC4000s are very quiet in terms of video noise, which has given us the ability to freely vary gain against iris settings in looking for our desired depths of field.”

Jeff Calderon, Vice-President of Academy Lighting Consultants
“As expected, the cameras have been completely roadworthy, reliably up to the challenge of four-hour set-ups and one-hour break downs in totally divergent performance venues.”

Trey Kerr, Principal, 201 Productions

Since building the mobile system, 201 Productions has completed the first two legs of a cross-country tour with the legendary jam band Phish that will continue throughout the winter (including four performances at Madison Square Garden for New Year’s Eve and three nights in Mexico). The company’s chief assignment for the band is live production, but the company is also tasked with providing a feed for live webcasts on LivePhish.com, as well producing performance videos for the band’s YouTube page and archiving each concert.

Kerr shoots and archives the Phish tour in 4K, 3840 X 2160 29.97. The UC3000s are outfitted with Fujinon XA99x8.4 ultra-wide 2/3” field production lenses and 22x telephoto zoom lenses (11.5-253mm). At most venues, he uses one UC3000 each in the pit, handheld on stage and stationary at the front of the house mix position, with two deployed in various ways contingent on the layout of each space. Four UE70 PTZs are always used on stage (left, right, on the drum kit and upstage center), with the fifth reserved as a “bonus-cam” for interesting aspects or angles.

“The cameras are performing very well with exceptional reliability, as anticipated,” Kerr said. “These benefits are particularly noteworthy on a Phish tour, with the band improvising a different set-list at each and every performance. The fact that each unique show was archived facilitated our posting select 4K song segments to the band’s YouTube page throughout the tour.”

Kerr said that recent assignments for the 4K mobile system also included Greensky Bluegrass at Colorado’s Red Rocks Amphitheatre.

Maximizing the Live Experience: How 201 Productions Covers Major Music Tours/Events at Venues Throughout the Country
Seminole Productions, the video production unit of Florida State University’s College of Communication, are equipped with eight of Panasonic’s AK-HC5000 4x high-speed 1080p camera systems.

The HC5000s played an integral role in the major upgrade of FSU’s Doak Campbell football stadium, which included the creation of two new control rooms that are connected to eight campus venues over fiber. Mark Rodin, Executive Director of Seminole Productions, explained that he had narrowed his camera search to 1080/60p models, which would be compatible with the state-of-the-art Panasonic large format LED video boards that are installed throughout Doak Campbell Stadium. “We evaluated multiple cameras, and the HC5000 stood out on the basis of its stunningly beautiful pictures,” Rodin said, “The fact that 240fps super slo-mo is built into the cost of the cameras was a huge selling point. And the CCUs are impressive, facilitating remote control for camera shading and engineering.” Rodin explained that he moves the HC5000s around from venue to venue as needed, and often deploys them to cover simultaneous events. The chief application for the HC5000s is to feed live game video to venues’ video boards for enhanced fan engagement, but they’re also used for various ESPN and seminoles.com productions.

Florida State University’s Seminole Productions Utilizes Panasonic AK-HC5000 High-Speed Camera Systems for 1080/60P Production

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Mark Rodin, Executive Director of Seminole Productions
As part of a multi-million dollar upgrade of its historic Rice Stadium (home of Super Bowl VIII), Rice University (Houston, TX) Athletics utilizing four Panasonic’s AK-UC3000 4K camera systems, as well as AW-HE130 integrated pan/tilt/zoom cameras for high end-zone coverage.

According to Ryan Bucher, Rice’s Associate Athletics Director for Facilities and Management, “The UC3000s are state-of-the-art production cameras that will give us much higher-quality video to feed our new LED 1080p board, as well as to push out content via social media platforms and to ESPN3 and other broadcast partners. The new cameras will definitely enhance the game-day experience for our fans.” Bo Hoover, President of Technical Services Group (Baton Rouge, LA), the integrator on the project, added, “In making our camera choice, the initial top criterion was uncompressed long-distance transmission over SMPTE fiber; an ESPN3 design spec. But once we made the decision to invest in 4K now, the UC3000 won out not only on the basis of that capability, but also its attractive price point and 4K/HD image production.” The UC3000 has a large, full-UHD resolution single MOS sensor that (with the UCU500) outputs a UHD signal up to 3840/2160/60p, while also delivering superior picture quality in HD. The camera’s B4 mount accommodates the gamut of existing 2/3-inch lenses to maximize customers’ return on their investment in existing lenses, and allows a wider and more economical choice of glass for sports, concerts and similar applications.

The UC3000 also enables shooting with high sensitivity (F10/2000lx), low noise (5SN-L40dB), high resolution (1810 TV lines/UHD) and a wide dynamic range of 49.0N(-14dB~36dB). “The HE130 cameras were really a driver on the project because of their seamless integration with UC3000s,” Hoover said. “The PTZs’ common interface with AK-HRP1000 Remote Operation Panel will allow simultaneous shading of all the cameras on the field, which is a real advantage.” In terms of camera locations, three of the UC3000s are situated in an upper deck looking down, with the fourth placed on the field. The HE130s are used for high end-zone coverage, as well as by Rice football’s video production department to capture coaching video. “We really like the fact that the UC3000 camera body can be used, with the same functionality, in a fixed position or handheld,” Bucher said. “We anticipate fairly rapidly broadening the implementation of the UC3000s to basketball, baseball and volleyball.” And in terms of future plans, the all-important 4K capability of the UC3000 will let us expand as technology expands,” he added.}

Rice University Athletics Relies on Panasonic 4K Camera Systems as Linchpin of Football Stadium Technology Upgrade

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Panasonic professional 4K cameras comprised of 13 VariCam LT 4K cinema cameras, two AK-UC3000 4K studio camera systems and five AW-UE70 4K integrated pan/tilt/zoom cameras captured the concert of musical hits that have delighted millions of children, parents and grandparents.

This broadcast version of the live European premiere on the world-famous Royal Albert Hall stage was hosted by West End star John Barrowman. The show featured the 75-piece BBC Concert Orchestra alongside a bevy of stars – including eight-time Academy Award-winning composer Alan Menken and members of Aladdin’s West End cast – performing scores from an astonishing number of Disney successes.

The Panasonic 4K camera systems, were the centerpiece of an extensive equipment package, controlled via a fly-pack built around Evertz routers, Kayenne switching and Riedel communications.

Jay Hatcher, Broadcast Video Director, Walt Disney Parks and Resorts, said, “This event had so many elements – the world-class orchestra, the 80-person choir, West End and Broadway luminaries, glorious lighting, Alan Menken, the iconic venue – that it was daunting to say the least.”

“As the TV production designer and director, my objective was a cinematic look, a visually stunning product to match the magic of the music: I don’t think we could have accomplished such spectacular results had Panasonic not jumped on board as our camera partner,” he added.

“I venture to say that this camera arsenal made my vision of the concert come true. The two UC3000 studio cameras were placed at front of house shooting toward the stage. One was on a riser on the floor level. The other was placed in the second level Loggia Box. The studio cameras used a Canon XK9x51E.8B HD DigiSuper 9x lens and Fujinon XA99x8.4 HD Digi Power lens.

The DP said the concert was shot in 4K V-Log to create the broadcast version. “Panasonic’s team worked in advance to provide a LUT for the live switched show displayed on the large in-house IMAG screens, and we utilized that LUT in the early stages of post,” he noted.

Outboard recording from the UC3000s was done in ProRes 4444 to AJA Ki Pro recorders. Editing for the Sky Arts broadcast was done in Adobe Premiere Pro, and color correction in DaVinci Resolve.

“We’d shot an ungraded 4K master in V-Log, so we didn’t realize the full effects until after the color correct,” he said. “Details jumped off the screen and brought the show to a whole different level – basically, our jaws dropped.”
Duke Athletics Deploys Panasonic 4K and High-Speed Studio Cameras

Duke University employs eight Panasonic AK-UC3000 4K studio cameras and two AK-HC5000 high-speed 1080p studio cameras to cover a range of athletic events.

The Panasonic cameras play an integral role in Duke’s newly-renovated Brooks Field at Wallace Wade football stadium, which includes the creation of a new master control room that has three control rooms connected to five different facilities over fiber, including Cameron Indoor Stadium.

According to Chad Lampman, Executive Director of Video, Duke Athletics, “The UC3000 future-proofs us for ultimate 4K broadcasts while at the same time giving us the 1080p acquisition we need today. With the 10 cameras, we’ll be able to direct two large-scale events/games simultaneously, with each show having its own 8-mo camera.”

Duke Athletics also holds a mobile truck with four Panasonic AJ-HPM00 AVC-ULTRA camcorders.

The UC3000 has a large, full-UHD resolution single MOS sensor that (with the UCU500) outputs a UHD signal up to 3840/2160/60p, while also delivering superior picture quality in HD. The camera’s 84 mount accommodates the gamut of existing 2/3-inch lenses to maximize customers’ return on their investment in existing lenses, and allows a wider and more economical choice of glass for sports, concerts and similar applications. The UC3000 also enables shooting with high sensitivity (F10/2000lx), low noise (SN 60dB+), high resolution (1800 TV lines/UHD) and a wide dynamic range of 600%(-6dB~36dB).

The fast, high resolution HC5000, capable of high-speed output up to 1080/239.76p, incorporates new 2/3” 2.2M 3-CMOS sensors with high sensitivity (F10/2000lx), low noise (SN 60dB+), and resolution measured at 1100 TV lines. The HC5000 shares many characteristics with the UC3000, and both cameras can use the same system components, including a CCU, Remote Operation Panel and 9” Studio Viewfinder. The CCU provides power up to 6600 feet over standard SMPTE hybrid fiber. The fiber carries tally, intercom and return video.

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Chad Lampman, Executive Director of Video, Duke Athletics

Accessories

Camera Control Unit
AK-UCU500

9” LCD Color Viewfinder
AK-HVF100

Remote Operation Panel (1/4 Rack)
AK-HRP1000

Remote Operation Panel (1/5 Rack)
AK-HRP1005

Master Control Unit
AK-MSU1000

Cabling/Travel Case
SHAN-HC5000

10G MoIP Board
AK-NP600

Quick-Release Tripod Adapter Plate
SHAN-TMT00

Premium Color HD Viewfinder
AJ-CVF50

Build-Up Unit
AK-HBU500

Carrying/Travel Case
SHAN-HC5000

Microphone Kit
AJ-MC700

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