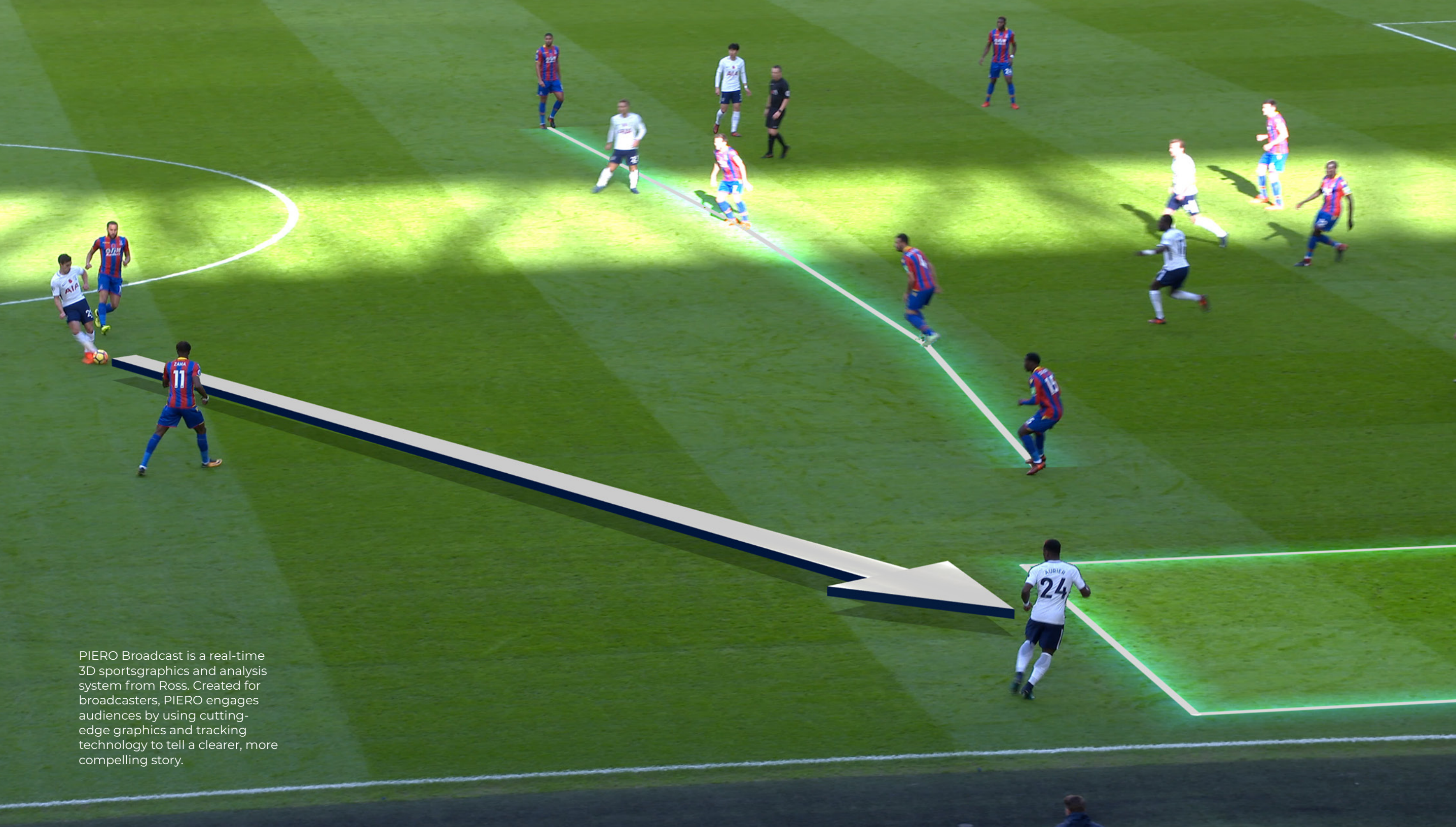


PIEROTM



BROADCAST



PIERO Broadcast is a real-time 3D sportsgraphics and analysis system from Ross. Created for broadcasters, PIERO engages audiences by using cutting-edge graphics and tracking technology to tell a clearer, more compelling story.

WORLD-LEADING SPORTS GRAPHICS ANALYSIS SYSTEM

ADVANCED ANALYSIS

PIERO is built on a proprietary line and texture tracking algorithm that was co-developed with the BBC's Research and Development department. The technology creates a seamless blend of graphics and video which maintains perspective and keeps graphics tied to the game as the camera moves.

WIDE FEATURE SET

PIERO's wide feature set is compatible with over 20 different sports. You can mark players, track runs, add speed and distance, show movement, and much more. PIERO allows you to engage your audience by creatively adding graphics and providing new, interesting views of the action.

NEW ANGLES & TRANSITIONS

PIERO's virtual stadium feature can create 3D replays that show plays from new, previously unseen angles. The Multicam effect can smoothly transition from one camera to another, and both modes can be used to show data feed visualizations through a touchscreen.

FAST & EASY TO USE

PIERO is fast – clip creation time varies between just seconds for simple clips up to 15 minutes for the most complex thanks to PIERO's rapid workflow. You can source external video servers from a Mira+ chassis or work from pre-recorded video files.

REAL-TIME, ACCURATE GRAPHICS

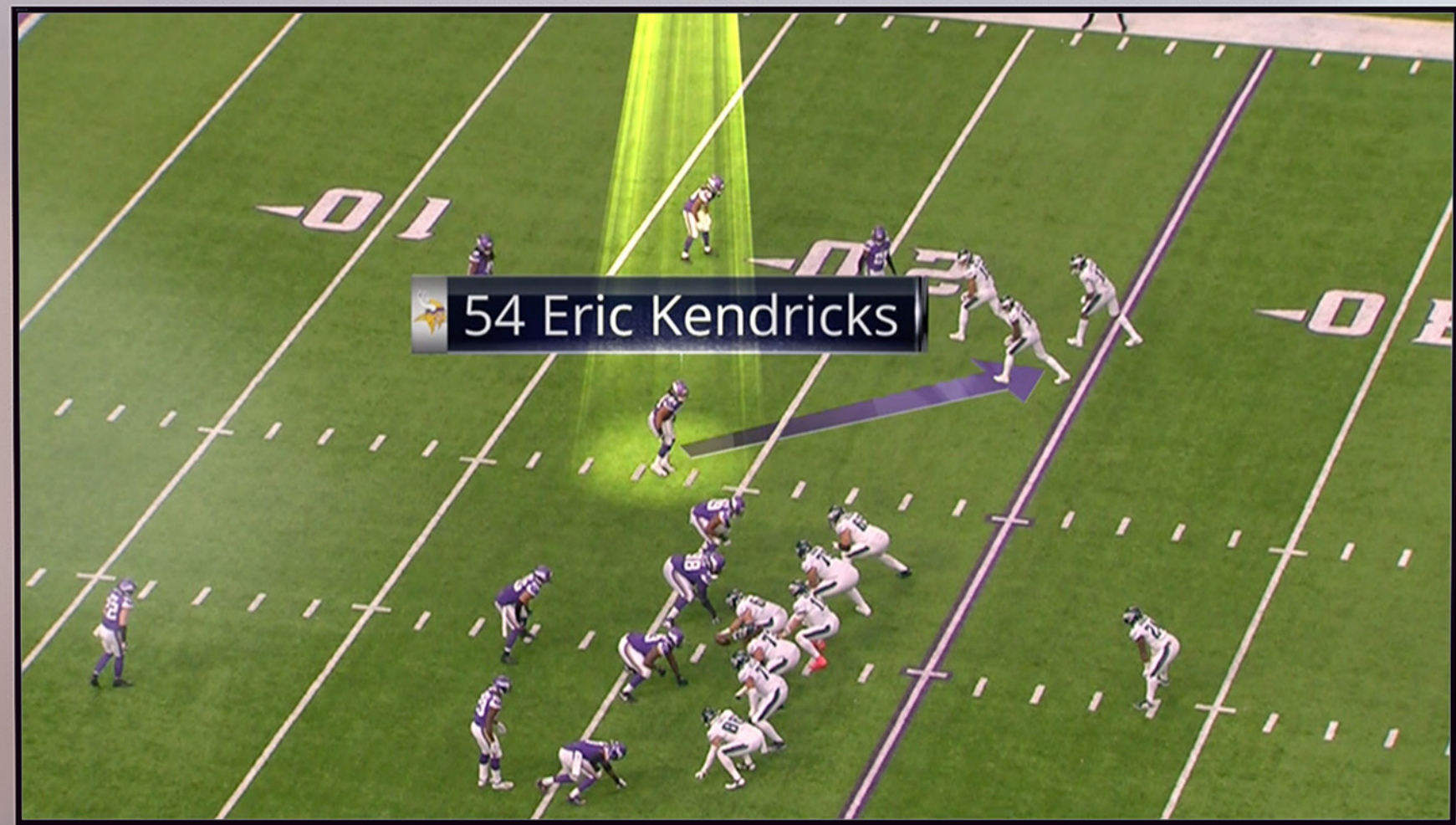
PIERO's advanced line and texture tracking technology follows the position of the camera even when it's moving. This ensures that graphics are always shown in the proper perspective on the field of play.

BETTER COMMENTARY

PIERO's wide range of effects helps producers, presenters, and commentators analyze the incidents on the sports field more effectively. The system is also able to ingest and analyze data from various sources to generate impressive visualizations.

FITS YOUR WORKFLOW

PIERO provides a wide range of modes to support all types of workflows. From in-depth discussion to quick annotation, PIERO makes analysis easy. For highlights, the system can create them during the game and then air them at half-time, after the game, or later.



KEY BENEFITS



SPEED

PIERO is easy to deploy and use. Fast clip creation and turnaround guarantee high-quality on-air results even in time-constrained productions.



REACH

PIERO is the world leader in sports graphics analysis, with an extensive global customer base. PIERO's graphics can regularly be seen during coverage of high-profile international sports events such as the FIFA World Cup and the Olympics.



QUALITY

PIERO's simple workflow and outstanding Ross customer service make it a joy to work with. Its graphic quality and ease-of-use are regularly praised by customers around the world.



REVENUE

PIERO offers the capacity for additional sponsorship opportunities for broadcasters. The system's effects and graphics can be customized to achieve maximum brand visibility for sponsors.



TRUST

PIERO's development has been and will continue to be a collaborative process. As an industry leader in live video production, we at Ross understand the importance of understanding, working with, and building strong relationships with our customers.



SCOPE

Ross is continuously investing in research and development of sports graphics to deliver groundbreaking analysis features. PIERO is constantly evolving with new features and effects.

PREMIUM MODULES

PIERO is a modular system with optional Data Visualization and Touchscreen features. The 'Data Visualization' module generates graphics from game data supplied by third-party providers. The 'Touch & iPad' module allows remote control via touch-screen and tablet through a simplified user interface.

Justin Turner v. RHP

DATA VISUALIZATION

PIERO works with Event and Tracking data. The data-driven graphics provide rich insights into the patterns of play by teams and players. PIERO's data visualization module creates graphics such as shot spray charts, passes between players, heatmaps, automated tracks for all players, historical set plays, and more. The data is easily filtered by date, game, and player before it is visualized in perspective on the real camera shot. Since PIERO renders graphics in real-time it is possible to overlay meaningful information on the opening shot of a soccer 2nd half or whilst a baseball player gets ready to bat.

The PIERO remote API is open to all customers. It allows clients' internal data science teams to use PIERO as a renderer to visualize their key performance indexes.

TOUCHSCREEN

PIERO's touchscreen interface provides a simple and interactive way to add graphics to a video clip. The intuitive and fully customizable user interface adapts to any screen size, location, and production style. Presenters can move a fielder to a different position, highlight a space, reveal distances, cue pre-made clips, and use them to speed up workflows using video analysts based in different locations.

The system is portable and easily extended thanks to its simple TCP/IP connection. Multiple devices can connect simultaneously, making it a great choice for remote production.

PIERO has been designed to allow producers and analysts to make changes up until the last minute and still make it to air!

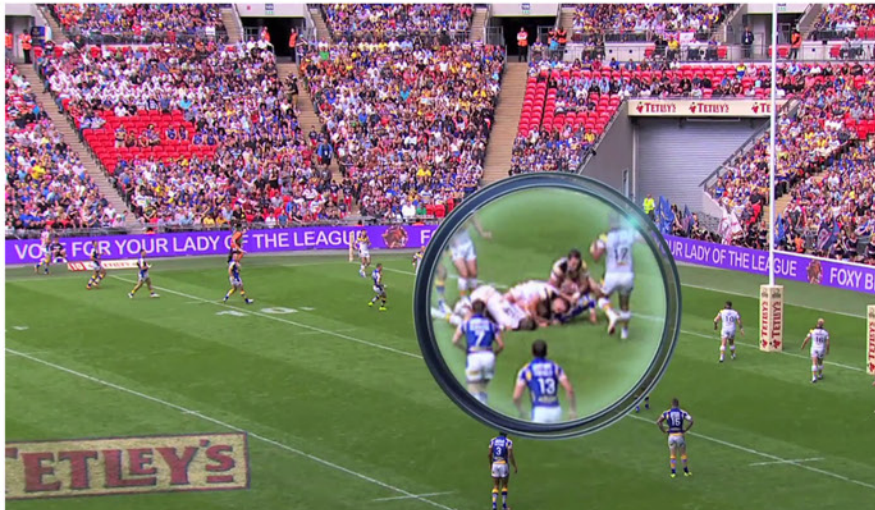
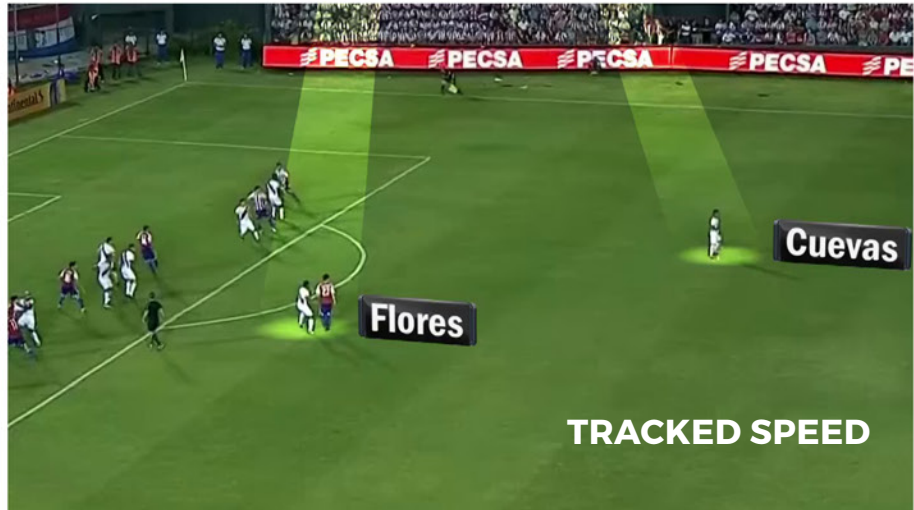
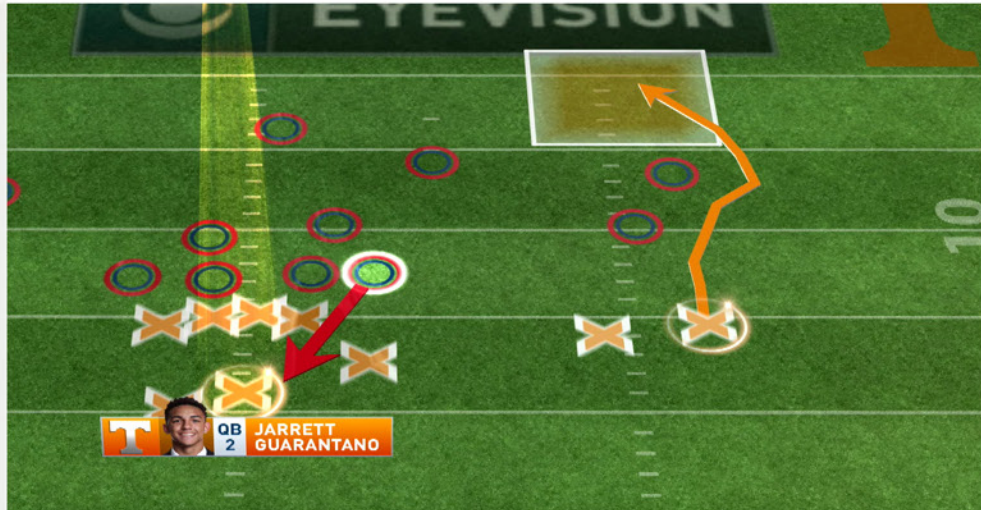
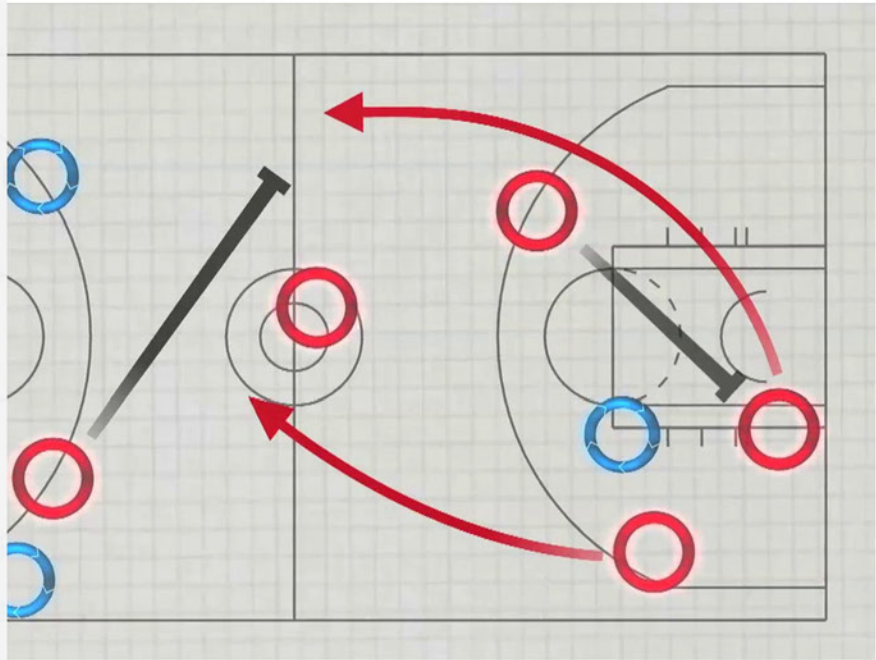
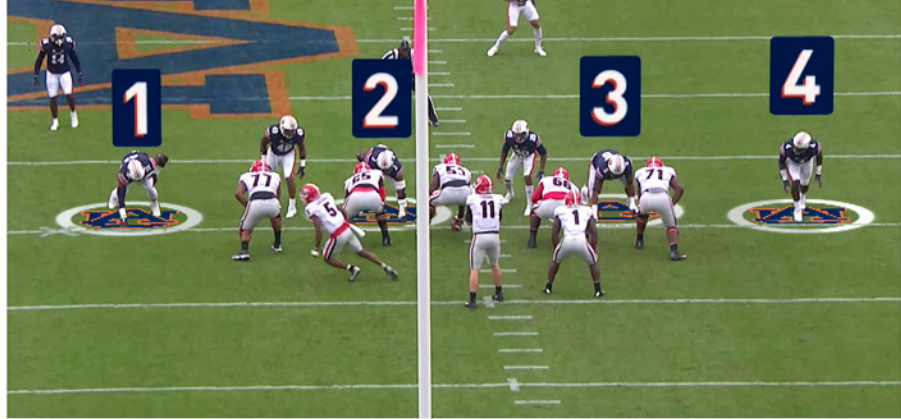
Compatible with iPads and a variety of other touchscreen devices.



EFFECTS

With over ten years of experience in sports graphics, PIERO has crafted an unrivalled palette of effects to help you analyze the action. PIERO works closely with clients to develop new styles and customize existing effects. Effects can be used in both real and virtual settings and can blend seamlessly between the two.

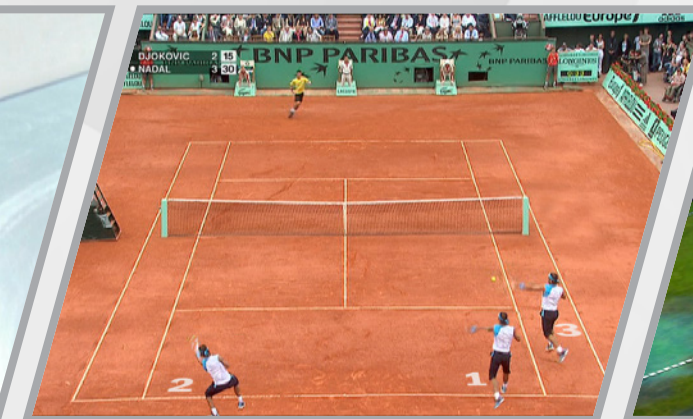
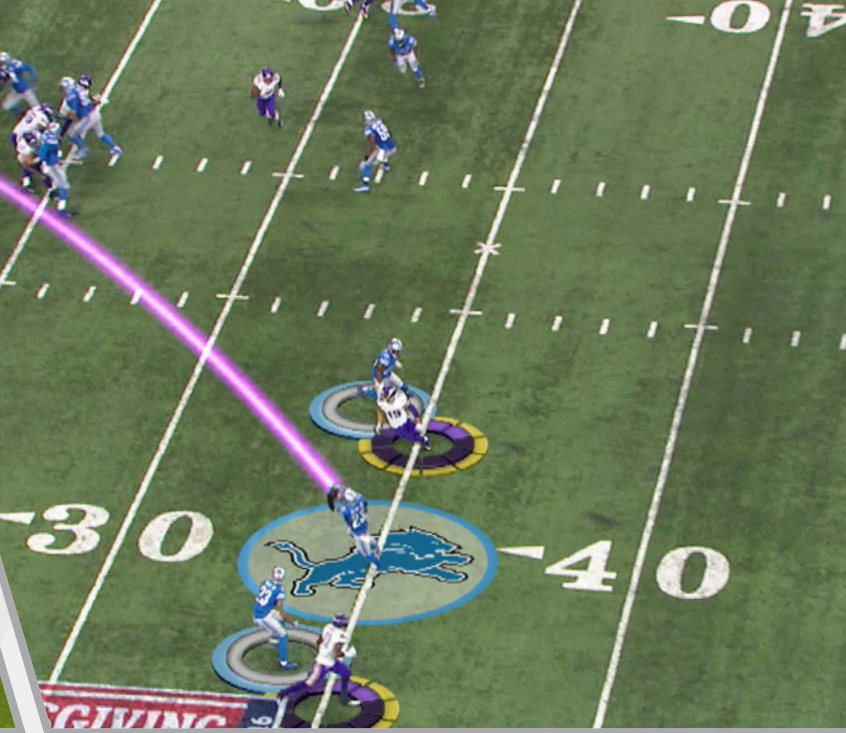
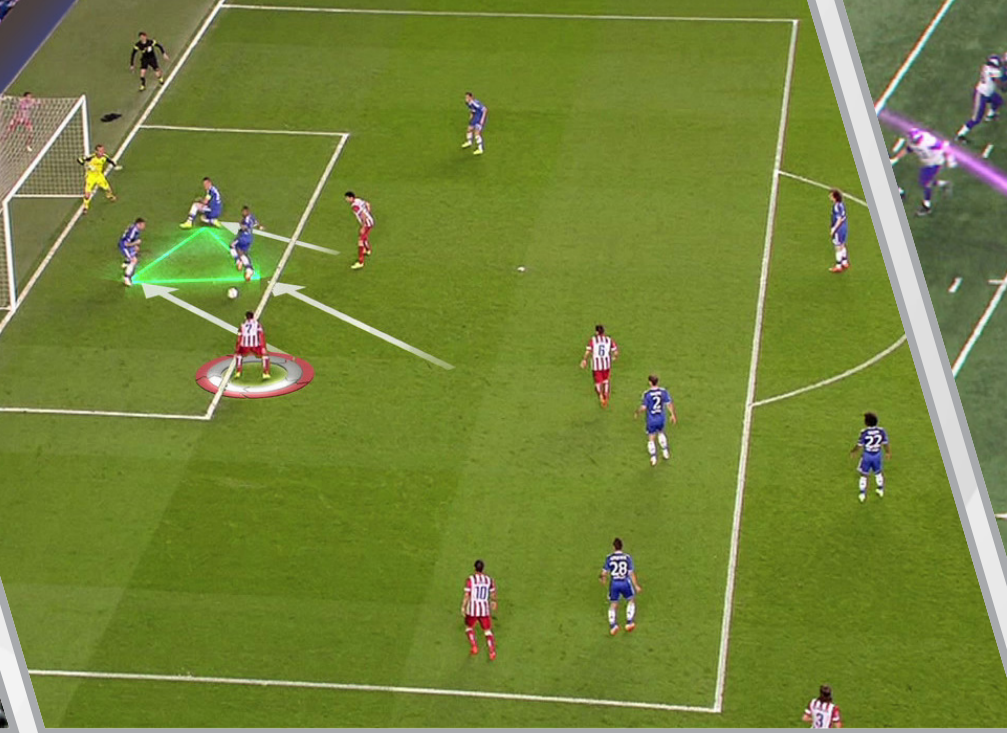
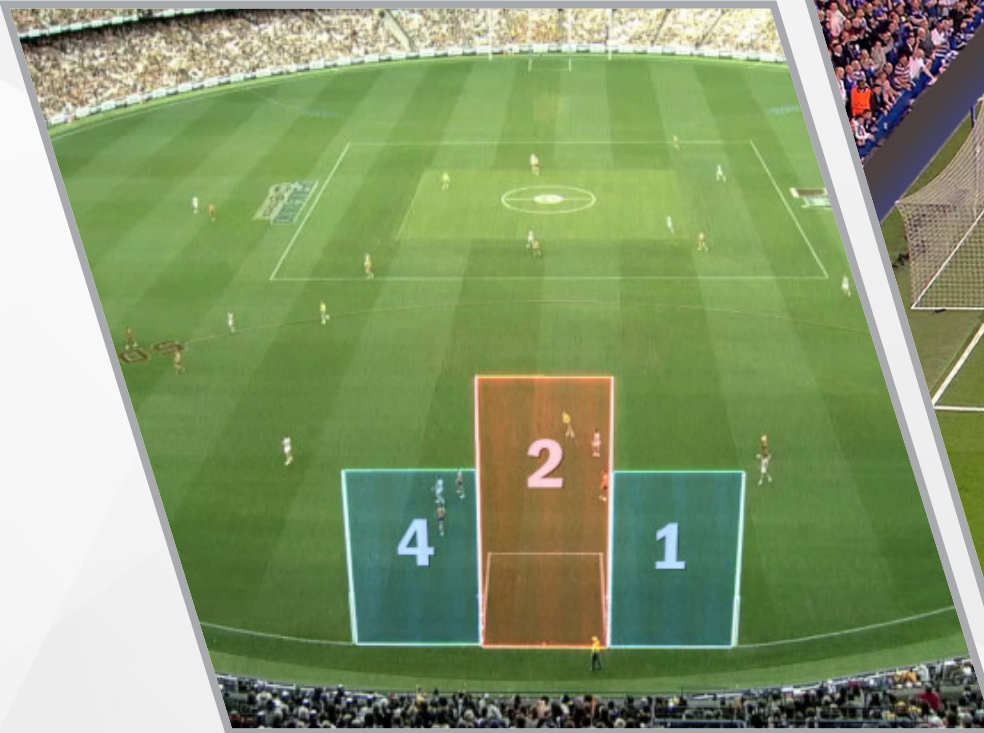
- OFFSIDE LINE
 - 3D OVERHEAD
 - ARROWS
 - TIME LAPSE
 - VIRTUAL STADIUM
 - SCORES & BADGES
 - PLAYER GLOW
 - LASER WALL
 - VIRTUAL PLAYER RUN
 - TACTICAL BOARD
 - GOAL ARC OVERHEAD
 - FREE KICK CIRCLE
- 3D VIRTUAL REPLAY
 - REMOVEABLE PLAYERS
 - PLAYER LINE-UP
 - MAGNIFIER
 - MARKERS
 - PLAYER DRAG
 - TIMER
 - TRACKED FORMATION
 - SPOTLIGHT
 - VIEWPOINT
 - CAPTION TRACKER
 - VIRTUAL PRESENTER



SPORTS

PIERO's system supports 20 of the world's major sports, and the list continues to grow. With PIERO, you can bundle as many sports modules as you need without requiring additional software.

- AMERICAN FOOTBALL
- AUSSIE RULES FOOTBALL
- BADMINTON
- BASEBALL
- BASKETBALL
- CRICKET
- FIELD HOCKEY
- GAELIC FOOTBALL & HURLING
- HANDBALL
- HORSE RACING
- ICE HOCKEY
- KABADDI
- LACROSSE
- NETBALL
- RACING FORMULA 1 MOTO GP
- RUGBY UNION & LEAGUE
- SOCCER
- TENNIS
- TABLE TENNIS
- VOLLEYBALL BEACH & INDOOR

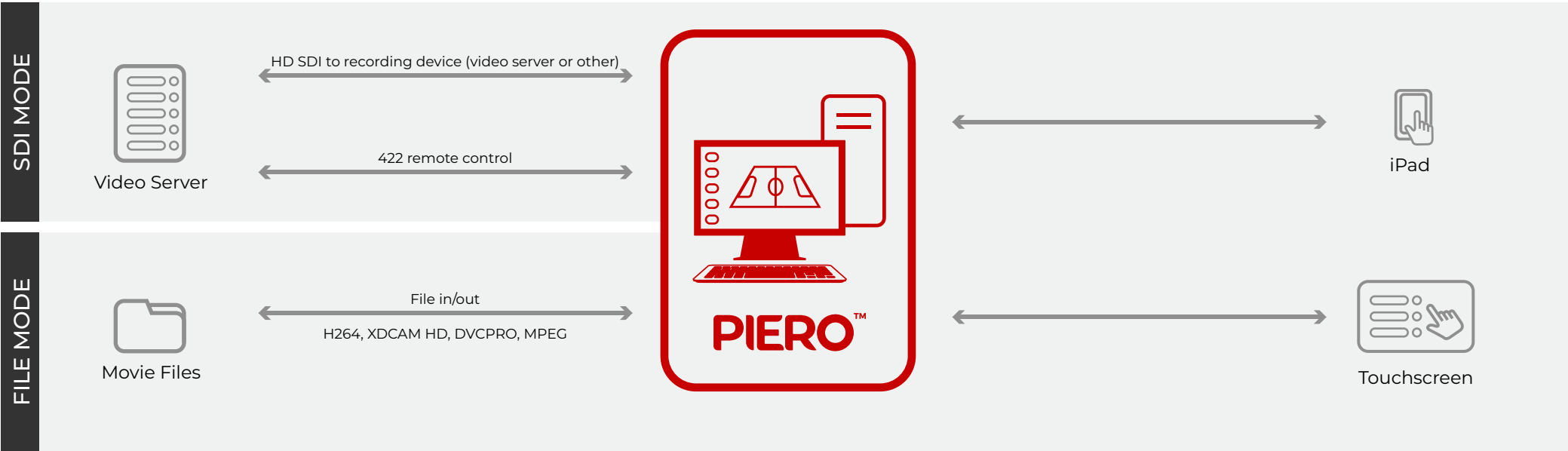


SPECIFICATIONS

PIERO operates on a single PC running Linux, and the software is licensed annually and verified by USB dongle. PIERO provides the machine, software and dongle. The touch interface can run on any Windows platform or iPad (not supplied).

SYSTEM

HARDWARE	2RU server with Nvidia Quadro and AJA card running on Linux CentOS. 5+ years product lifecycle.
PIERO SOFTWARE	PIERO Sports Graphics engine with file mode timeline analysis interface. Requires licensed USB dongle.
OPTIONAL MODULES	Data module and touchscreen module.



ROSS VIDEO

Production Technology and Services

MOTION GRAPHICS

XPRESSION | Single, Triple, UHD Flex, Prime, Go!, Designer, Developer
XPRESSION CLIPS
XPRESSION TESSERA
XPRESSION MAPS
XPRESSION TELESTRATE
XPRESSION TOUCH FACTORY
XPRESSION BRAND IT
PIERO | Sports Analysis Graphics



CREATIVE SERVICES

ROCKET SURGERY | Graphics Creation



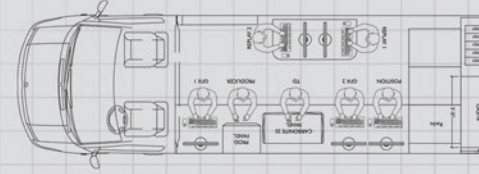
STUDIO IN A BOX

GRAPHITE | All-in-One Live Production Vehicle



OPENTRUCK

OPENTRUCK | Flight Case through 40-foot Truck



PRODUCTION SERVICES

ROSS MOBILE PRODUCTIONS



ASSET MANAGEMENT & STORAGE

STREAMLINE | Standard, Enterprise, Graphics
STREAMLINE.CLOUD
STREAMLINE NEWS VIDEO SUITE | MAM, Storage & Playback for News
EVO | Networked Storage



CAMERAS

ACID CAMERA | H200-UCHR, Z50-UCHR
PIVOTCAM | PivotCam SE



MULTI-SCREEN IMAGE PROCESSING

CARBONITE MOSAIC



CHROMA KEYING

ULTRACHROME HR



* Carbonite Black Chassis with UltraChrome HR Software

NEWS & SOCIAL MEDIA

INCEPTION NEWS | Academic, Express, Standard, Enterprise
INCEPTION LIVE
INCEPTION SOCIAL
INCEPTION.CLOUD
HORIZON



CONTROL SYSTEMS

OVERDRIVE | Express, Prime, Premium
DASHBOARD | Facility Control
LIGHTNING | Assembly Control
ULTRITOUCH | Touch Screen Control
POWERPLAY | Event Control System



INFRASTRUCTURE

SIGNAL PROCESSING

OPENGear | Modular Signal Processing, OGX Frame
MASTER CONTROL | MC1 openGear Card, MC1 Panel
NIELSEN | Watermarks Encoder
GATOR | 12G UHD Signal Processor
RAPTOR EDGE | IP Gateway & Processor
GEARLITE | Point of Use Signal Processing

NEWT | IP Point of Use Gateway
MASTER SYNC & REFERENCE | SRG-2200, SRG-4400, ACO-4400
AUDIO MONITORING | MB 651, MB-652



CONNECTIVITY

ULTRIX 12G & IP ROUTER | 16x - 144x
NK ROUTER | 16x4 -144x144
ULTRITOUCH | Touch Screen Control
ULTRICORE BCS | Advanced Connectivity System Controller
ULTRICORE IP | IP Controller License for Ultricore BCS
PRO-XI | Workstation Integrator

IP TECHNOLOGY

OEM PRODUCTS | Market Ready Modules & System-on-Chip
IGGY | Bidirectional AES67 & ST2110 to MADI converter
BACH | ST2110 AES67 Audio Networking Module



VIDEO SERVERS, REPLAY & DELAY

MIRA+ | Enhanced Replay System
TRIA+ | Enhanced Production Server
TRIA NEWS | News Clip Server
AIRCLEANER | Live Events Delay

MIRA EXPRESS | Replay System
TRIA EXPRESS | Video Clip Server – new 1080P version



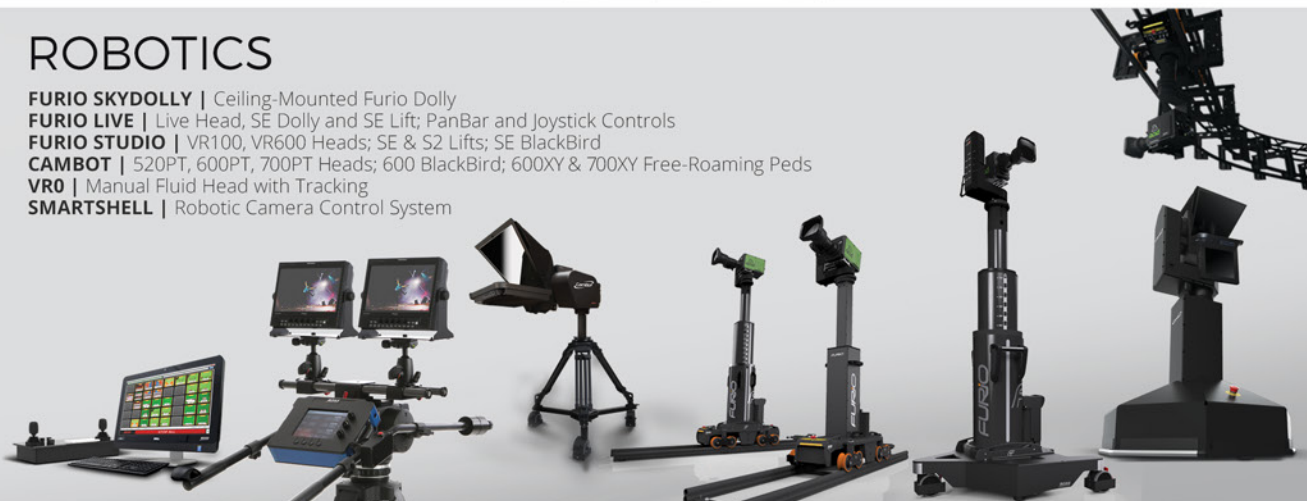
PRODUCTION SWITCHERS

ACUITY | Panel: A1s, A2m, A2x, A3m, A3, A4 Frame: 4RU, 8RU
CARBONITE BLACK | Panel: C1, C1s, C2, C2s, C3s, C3x Frame: 2RU
CARBONITE BLACK PLUS
CARBONITE BLACK PLUS 12G
CARBONITE BLACK SOLO
CARBONITE BLACK SOLO 13
CARBONITE ULTRA
ACUITY & CARBONITE IP SOLUTION



ROBOTICS

FURIO SKYDOLLY | Ceiling-Mounted Furio Dolly
FURIO LIVE | Live Head, SE Dolly and SE Lift; PanBar and Joystick Controls
FURIO STUDIO | VR100, VR600 Heads; SE & S2 Lifts; SE BlackBird
CAMBOT | 520PT, 600PT, 700PT Heads; 600 BlackBird; 600XY & 700XY Free-Roaming Peds
VR0 | Manual Fluid Head with Tracking
SMARTSHELL | Robotic Camera Control System



VIRTUAL & AUGMENTED REALITY

TRACKLESS VIRTUAL
UX5 | Control System & Workflow
VOYAGER | EPIC Unreal Engine 4
ARVS Render



PIERO™ BROADCAST

Ross Video has a complete range of technical services available to ensure that your PIERO installation is a success.

Operational Training can be provided at Ross Video, on-site, or on the web. Experienced Ross operators will teach your staff to get the most out of your new system and enhance your productions.

Commissioning is a service to help get your production system properly configured, connected, and installed. This service is performed by factory-trained Ross technical staff.

Technical Training can be provided at Ross Video, on-site, or over the web. Technical training will teach your engineering staff the technical details of the system you have purchased. System configuration, interfaces, databases, and routine maintenance procedures are some of the topics covered.

PIERO comes standard with a 1 year comprehensive warranty. Extended Warranties on hardware and software maintenance are available for an annual fee.

Technical advice is available on-line, by telephone, or email to Ross Video – Included for the life of your system.

Contact Us

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North America: 1-844-652-0645

Email: solutions@rossvideo.com

Technical Support

Emergency: +1 613 349-0006

Email: techsupport@rossvideo.com



www.rossvideo.com

ROSS VIDEO LIVING LIVE!

SOLUTIONS

Broadcast & Production
Augmented Reality & Virtual Sets
Sport & Live Events
Legislative
Mobile Production
House of Worship
Education
Corporate

PRODUCTS

Production Switchers
Motion Graphics & Clip Servers
Replay & Production Servers
Robotic & Camera Systems
Control Systems
Routing Infrastructure
Signal Processing Infrastructure
News, Live & Social Production Management
Asset Management & Storage

SERVICES

Creative Services
Mobile Production

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