Taking live sports to the premier league

Every viewer has a favourite TV sporting moment, whether it is watching an Olympian standing on a medal winning podium or a nail-biting football penalty shoot-out, they make lasting memories. Shooting each piece of live action is no mean feat and, behind the scenes, it's no secret that each sports production has to be carried out with military precision.

The pressure on broadcasters to create the most compelling and dynamic live sporting coverage has grown significantly in recent years. The competition is fierce and as the number of channels showing live sport increases, the bar is pushed ever higher so global audiences increasingly expect to see something new. Viewers have grown accustomed to more diverse coverage with new providers entering the market, such as BT Sport in the UK. Therefore production teams keep looking at new ways to set themselves apart from their competitors.

Regardless of the budget or the size of the production, one of the key considerations for every OB covering live sport is the equipment. Not only does it have to perform reliably and effortlessly so the operator can consistently capture those crucial shots, it has to have the portability required to be moved from venue to venue and be robust enough to withstand the demands placed upon it in the field. From the cameras themselves, to the camera support equipment and accessories, the environment demands the toughest kit that can also offer the precise performance essential for sports broadcasting.

Live sport broadcasts demand a reliable operation and the pan and tilt heads and tripod systems have to provide the ultimate support to the camera and its operator. For example, the Vision 430 head has been chosen for many OB applications due to its versatility; it can be mounted on any pedestal or tripod and support a mix of portable cameras with lenses, viewfinders, augmented reality feeds, prompters and pan bar controls. It is able to offer the precise camera control that is crucial for operators shooting at sporting events.

One trend we have seen developing in the coverage of live sports in recent years is the growing use of virtual and augmented reality outside the studio. Broadcasters want to take full advantage of the increased capabilities of VR technology and use these applications to raise their production values. Sport is leading the field in Virtual Reality and other live programme formats are following suit.

VR graphics have been used in live sports programmes for several years, with a range of tried and tested techniques from regularly generating team logos on pitches, to illustrating offside lines or the length of a conversion kick. While graphics software is often at the top of broadcasters' VR technology agenda, there are other, crucial requirements. For example, a broadcaster could choose the highest quality graphic software system, but without the right tracking solution and the right camera support equipment the quality and performance is lost.

For broadcasters to achieve the perfect match of real and virtual elements, the graphics system has to know precisely where the camera is pointing, to understand the field of view so that the scale and perspective can be correctly matched. To achieve this, all camera movements must be captured, then tracked and communicated back to the software that is rendering the graphic.

The Vinten Vector 430i and Vector 750i encoded pan and tilt heads can deliver the precise positional data needed for virtual and augmented reality applications when shooting live sports in outside broadcast environments. The heads' intelligence modules enable camera operators to have semi automatic set-up, slide plate tracking and kinematic compensation. When combined with the Vinten Virtual Reality Interface (VRI) box, the heads provide precise positioning data to ensure the stable and accurate placement of virtual graphics into the live environment. The VRI box processes the positional data from the head encoders and offers a direct interface to lenses with encoder outputs, or bolt on lens encoders, to provide a single data stream to the graphics rendering system.

Another equally exciting technique that is being explored is the use of unobtrusive camera systems in a bid to capture more dramatic and creative shots. Live sports coverage can benefit from footage from the most unusual positions and close up angles, using cameras that are as unobtrusive as possible, to capture every piece of action. Broadcasters can achieve this with systems such as the Q-Ball, a discreet remote mini-cam system that has the compact size and versatility required to deliver shots that a camera operator cannot capture.

The Q-Ball has been used in a variety of roles at some of the world's biggest live sporting events, giving directors the opportunity to capture close-up images of the games in progress and of the commentators, as well as cutaways to long-range 'beauty' shots from cameras mounted high overhead. The Q-Ball's hot-shoe mount means it can be placed in virtually any location, for example high in the stand or on the ground near the action. With a body machined from solid aluminium, it is robust enough to be taken on the road in an OB truck.

While the competition heats up in the latest sporting tournament, the pressure is on global broadcasters to provide the best possible coverage for their audiences. Like every sports person, success comes from using the right equipment and pushing the boundaries, and the broadcasters currently leading the field in live sports productions are those who follow that ethos.