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BOXX TV



## FAST-MOVING PRODUCTIONS NEED MULTI-CAM RF RELIABILITY

Wireless acquisition creates a level of freedom not possible with any other form of filming yet only a decade ago the technique was barely possible. The technology enabling live real-time connections over radio frequencies has advanced leaps and bounds such that there is barely an entertainment, documentary, sports or news format today that doesn't benefit from at least one link system. That means the demands on the kit continues to rise and includes the need for fail safe multi-camera operation, ease of use and backwards compatibility all within a small, lightweight and budget-friendly package.

The classic example of RF in action is X Factor where a Steadicam operator can be on stage and conduct a 360-degree sweep around the talent without tangling cables up with the singers. In a single or multi-cam mode for live reality shows or dramatic features, the flexibility of being able to roam without the cumbersome nature and health and safety hazard of lines back to a recorder or outside broadcast truck makes the shooting environment that much more fleet of foot.

Back in the pre-digital days, wireless was inherently unreliable. Any interference from reflections off buildings or simply distance from a receiver would compromise the signal unless relayed from fixed point to point. The first digital systems began to tackle this using SD MPEG-2 compression to send multiple copies of the signal from point A to point B with the signal being decoded and recombined using all available information to improve picture quality.

The disadvantage in this process was that latency, of half a second or more, made most live wireless pictures unusable. Cameras running the touchline of a soccer game would, when cut into the main mix, routinely be caught showing the same action already broadcast. Audio wouldn't be in-sync with the picture. Cost remained an issue with many microwave systems marketed for a prohibitive £50,000 or more.

Instead of compressing the picture through an MPEG engine a radically different approach was needed. Using Joint Source-Channel Coding (essentially the encoding of a redundant information source for transmission over a noisy channel), Boxx TV rewrote the rule book for the industry, by delivering reliable high-quality video at very low latency and an affordable price. It was a gamechanger in enabling wireless cameras to be cut perfectly with systems cameras and at a cost that opened the field to a wider range of production budgets. >>

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FAST-MOVING PRODUCTIONS  
NEED MULTI-CAM RF RELIABILITY

» Advances in the intervening years have seen codec technology standardise on the more efficient H.264 (MPEG-4 AVC) in High Definition with end-to-end latency drastically down to one or two frames. Compression algorithms continue to advance. In addition, the transmitters have gradually reduced in size and weight making them far more versatile and comfortable for camera-operators to maintain on their shoulders for longer periods. There have been innovations too in battery life while simultaneously reducing the heat emitted from them.

In tandem, the amount of product options on the market has grown but there are significant qualifications which make all the difference to directors of photography and camera operators. Arguably the most important of these is reliability. The fact is that producers – and audiences – have come to expect zero downtime and for wireless kit to work 99.999 percent of the time. Companies with a track record in delivering this performance, with customer support in your time zone, and which can turn around incident repairs in days not weeks will win out.

Then there's multi-cam usage. All too often with a production requiring four, five or as many as eight wireless camera operators working closely together there will be frequency issues. Automatic spectrum allocation systems tend to lead to situations in which Camera A begins to infringe on Camera B which knocks-on to Camera C and so-on. Pretty soon the whole system crashes.

The solution is a system in which users have manual control over spectrum combined with real-time transparent monitoring of all available channels. This is a capability unique to the Atom wireless solution.

Primed for today's fast-moving productions the Atom is incredibly simple to put into action. Performance can be monitored and adjusted in real-time at the touch of a button without manual pairing requirements or the need to connect to a PC to set attributes prior to operation. By making the most efficient use of the available spectrum, the system ensures reliable coverage thereby reducing the possibility of interference when using multiple transmitters in the same space.

Size still matters when it comes to transmitters which is why the Atom weighs in at just 227g and measures 112mm x 67mm x 24mm. It draws less power while boosting performance over an incredible 600m or more. The Atom transmitter provides an HD-SDI Loop along with HDMI inputs and can broadcast to an unlimited number of Atom and/or Atom Lite receivers. It delivers HD video with zero delay and offers real-time channel selection, within the 5GHz licence exempt spectrum.

In addition, smart functionality such as Time Code and Record Trigger, are included as standard on the entire product line. As well as being the smallest, lightest, and most affordable system by Boxx to date, the real strength of the Atom and Atom Lite systems is that they have been able to introduce new features whilst maintaining backward compatibility with existing transmitters and receivers so that all components in the entire Atom product line are interoperable and nothing is obsolete. That is simply not the case with competitive products but a source of tremendous satisfaction for our customers.

Although the industry has changed almost beyond recognition, Boxx TV's approach to design hasn't. We make breakthrough systems that provide quality the industry relies on at a fraction of the cost. ■

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