

Radio-controlled professional camera operation for film and TV

Hollywood – remotely controlled from Bavaria



Action-packed chases on Steadicam, perfectly lit scenes in razor-sharp detail and the aesthetic quality of 35mm film: Since the introduction of HDTV in North America, TV series have reached a level of film production on par with that of cinema. As a consequence, demands on recording technology and camera crews have increased. Reliable control over the focus, aperture and all other

settings to capture the perfect shoot is possible thanks to cameras equipped with radio control systems – most of which are manufactured in Bavaria.

There's a silent revolution going on with high-resolution television. Quality is increasing, at least from an aesthetic point of view. The high quality of the HDTV standard offers filmmakers the creative potential that has been restricted to the big screen until now.

Where Hollywood and (HD-)TV converge

Even the tiniest errors in sharpness or lighting have big consequences in HD television. Producers must perform a juggling act of continually increasing quality, at least visually, while staying within the tight budget constraints of weekly production. Action-packed productions in particular are no longer possible without technical support, even for TV cameramen. While the cameraman is busy capturing the perfect shot with a hand-held camera, assistants control other settings such as sharpness and zoom. Realising aesthetic aspects, such as quick changes of focus within an image to give the shot spatial depth, requires a dedicated control device on the set which is linked to a 'floating' camera via a radio control module. Otherwise additional cables would be required which would not only pose a trip hazard but also reduce camera manoeuvrability.



Of course, a radio control failure or 'misfire' would also have negative consequences - a shot rendered unusable by a blurred picture not only causes a lot of grey hairs but, in the case of complex scenes, also costs considerable sums of money. To complicate matters further, walkie-talkies, mobile telephones and other electronic devices such as the caterer's microwave cover the film set with a thick 'blanket' of radio waves which the camera remote

control must be able to penetrate in a reliable manner. Current standards for digital data communication place emphasis on high-bandwidth transmission, not on reliability. For example, data packets can be re-sent while surfing on the Internet, and glitches in telephone communication are no catastrophe – but the same cannot be said for camera control.

Robust radio transmission over licence-free ISM band

When it comes to remote lens control, the venerable Chrosziel GmbH from Heimstetten in Bavaria, Germany, have long relied on radio modules from the Japanese manufacturer Circuit Design. Technology ‘trends’ have nothing on these, says Heiko Groschupp, development and manufacturing technician for radio remote controls at Chrosziel. “Here, technologies such as Bluetooth or other current standards in the Gigahertz range are unusable. To control cameras, we need a strong signal to reliably transmit relatively little data.”



The radio modules from the low-power radio module specialist Circuit Design offers exactly this since they transmit control signals over the license-free frequencies between 433.05 MHz and 434.79 MHz, a range that is usually only used by analogue devices. Intelligent frequency selection in the band’s periphery ensures that interference from external devices is largely avoided. In addition, the first-class Circuit Design modules are based

on top quality frequency modulation with a narrowband modulation of only ± 3 kHz, not an amplitude modulation which is cheap to realise but prone to faults. Chrosziel has been using digital Circuit Design technology for over 10 years now. According to Groschupp, “Good cooperation in terms of reliable delivery and technical development speaks volumes for Circuit Design. The high frequency features of the Circuit Design modules were of key importance when we introduced transceiver technology for high-precision equipment for zoom and focus control in 2002.”



For over ten years Chrosziel has provided remote control units with Circuit Design technology, which allows the camera to be separated from its control elements over relatively large distances. “Technically speaking, the devices do not interfere with the control electronics of the various cameras, but instead operate as a direct mechanical interface using a high-resolution incremental encoder,” explains Jürgen Nussbaum, Managing Director of Chrosziel GmbH. According to Nussbaum, the mechanics are based on the camera itself, including its manual control elements. “Transferring the handwheel function to the remote control corresponds exactly to the camera’s mechanics.” Thanks to the so-called fluid damper or the expandable parts of the wheel, fine adjustments and clean zoom movements can be controlled through direct mechanical transmissions.



The specialist manufacturer has been developing and producing technical accessories and equipment for film and television since 1973. These products can be used with all popular professional cameras and are employed in TV and film production worldwide. “Whether the Oscars in Hollywood, a television series or the Football World Cup – when it comes to professional recording, Chrosziel products

are almost always used,” summarises Nussbaum, “Our company is the global market leader in numerous sectors.” Triggered by the HD trend, the market’s need for remote controlling has grown consistently, says Nussbaum. “Producing high-resolution television requires new equipment which is already available today in Chrosziel’s product range and is based on tried and tested technology.”

