



WITH THE CM93, AVONIC HAS DEVELOPED A BEAUTIFUL SUCCESSOR TO THE CM70

Broadcast quality for stage applications!

The Delft-based company Avonic has released the CM93, a new PTZ (Pan, Tilt, Zoom) camera as a successor to the CM70. The CM93 approaches broadcast quality for stage applications. "This is the next step in theater technology."

PTZ cameras, which are remotely controlled, can zoom and rotate around two axes. They are used in everything from reality shows to council chambers. By designing the completely new CM93 around Sony's 4K60 HDR CMOS sensor chip, Avonic is bringing a camera to the market with a resolution and color range suitable for theater and music productions that approaches the quality of much more expensive broadcast cameras. The recommended price is €2,500. "We've eliminated all the pincushion distortion when zooming." The zoom is 30x in 4K mode and 50x in HD mode.

"We also wanted to ensure that the light sensitivity remained at least

the same as in the existing lineup, even though we moved from an HD to a 4K sensor, where the pixels are packed more closely together and thus become smaller. When the light-sensitive cells are closer together and smaller, this can result in more image noise."

Although the sensor chip is larger than its predecessor's, this has not led to unmanageable dimensions, says Daniël de Bakker, product manager at Avonic. "The entire camera is about 25 percent larger than its full-HD brother."

Previously, Avonic offered the PTZ workhorse CM70, which produced images in HD quality (1,920 x 1,080).

FROM HD TO 4K SENSOR

Avonic designed the lens system for the new camera themselves. "Improving lens quality was very high on our list," says De Bakker, "and a lot of time and energy went into that. But we succeeded in creating a lens with very low so-called

TV distortion, meaning minimal barrel or pincushion distortion when zooming." The larger camera also resulted in slightly higher weight. "The chassis and all

supporting parts are made of aluminum; only the housing is plastic." To maintain smooth and precise rotation, the panning head now rotates on double bearings. De Bakker: "It's just a very robust camera, and we're quite proud of that."

INTO THE THEATERS

But the combination of a lens system and a sensor is just the beginning, he continues: "The integration of various modes of electronic image enhancement, adjusting the iris or diaphragm, took many months, including all the tests. We repeatedly had

"The entire camera is about 25 percent larger than its full-HD brother."





Foto: Fons Hogenes

prototypes that we rejected due to insufficient color depth or sharpness.”

The combination of resolution and extensive color depth brings an application within reach that was previously hardly possible for PTZ cameras: theater and live music productions. De Bakker: “The challenge in theater and music technology is that you deal with deep blacks and extremely lit objects. That means you have to manage your color and exposure very precisely. If you leave it on automatic mode, it can go all over the place. The CM93 is really the next step in this area.”

According to Fons Hogenes of Improve, who uses Avonic cameras, the 4K is an unmistakable leap in quality: “You often hear: full HD is more than enough for what we want, but you notice in every way that a 4K base is better, even if you only play it in HD. Compare it to Netflix: you don’t need a 4K TV to see that the source material was filmed in 4K.”

Output is possible in HDMI 2.0, 3G-SDI, USB 2.0, and IP formats. The 3G-SDI output is 3 gigabits per second over standard coaxial cables that can be tens of meters long. The parallel HDMI output for 4K at 60 frames per second goes up to 18 gigabits per second, a signal that remains stable for only a few meters without fiber optics or additional measures.



Daniël de Bakker

NATO CONFERENCES

De Bakker: “With the IP output, you reach a point with the CM93 that we carried over from previous series, namely that we have very low latency. The internal image processing time is so low that, with the right decoder, you can get below a hundred milliseconds.”

Low latencies are important for video connections involving live interaction, such as live conversations, but also in environments where spectators can follow both the event and the live image. “Think of large NATO conferences or COP28, with many speakers in a large room. Then the image and sound of the speakers must not go out of sync.”

Also, in live music performances where the audience sees the screens, such as the performance of the Matthäus Passion in Delft where the cameras have already been used, it’s important that the voices heard and seen do not drift apart.

IP, NDI, AND DANTE

The standard version of the camera outputs over IP (Internet Protocol), but versions are also available with NDI and Dante, network protocols that allow the camera to be seamlessly integrated into a studio network. Hogenes: “NDI is a convenience protocol: you don’t have to think about it, you just switch

it on, and you have the image.” This protocol is widely used in the broadcast industry. Dante originated in the audio world, but now video has been added as well.

Remote control is done via the standard VISCA protocol, developed by Sony. “It’s important to implement it as correctly as possible, so the camera responds properly to commands,” says De

Bakker. This is especially important during rapid sequences of control commands for seamless communication. “It seems logical, but in practice, many brands struggle with this.”

“It’s simply a very robust camera, and we’re quite proud of that.”

TRACKING

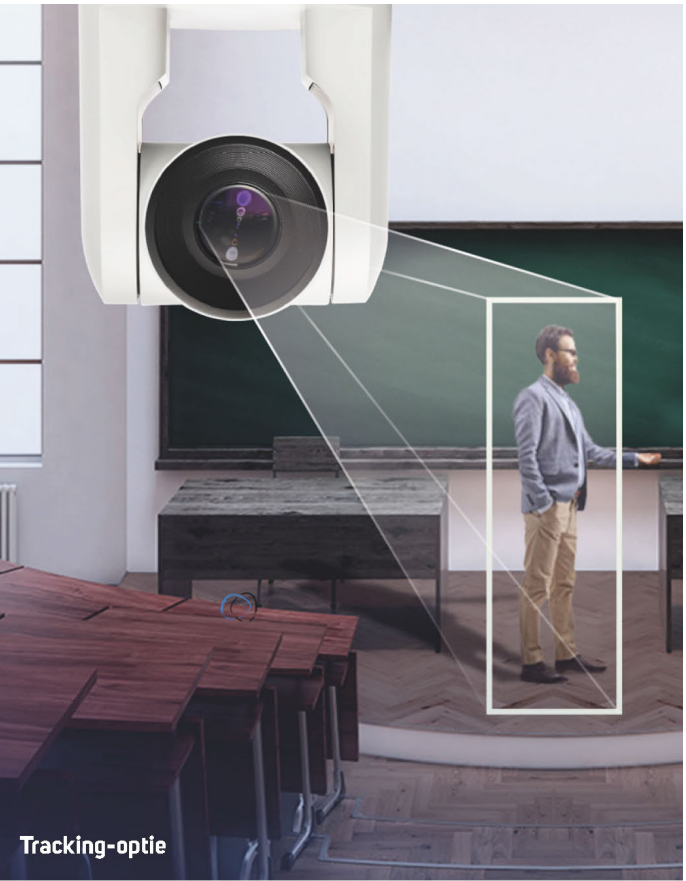
In addition to the above-described functionality of the CM93, a license is available for an additional tracking feature: following a speaker on stage. De Bakker: “You can choose a default position, and if the speaker enters that spot, they are tracked as long as they remain on stage.” The boundaries of the stage can also be set so that a speaker is not followed if they step off the stage. By developing their own tracking platform, CamDirector, Avonic has gained extensive experience in developing these algorithms. “It works very smoothly,” says

Hogenes. The tracking license costs €299. Soon, an extra feature will be added to this tracking option that makes the camera even more suitable for the conference market and also brings remote education within reach, such as in lecture halls and seminar rooms. The functioning in council chambers, where the camera automatically focuses on the person speaking, will also be improved.

De Bakker: “Usually, the camera focuses on fixed positions, but this Conference Tracking option makes the system more flexible: if the speaker moves to the side or stands up, they

are neatly kept in the frame by the camera. That’s a highly requested feature.” <<

FOR MORE INFO WWW.AVONIC.NL



Tracking-optie