HOW CANON CR-N700 CAMERAS ENHANCED VIRTUAL BROADCAST PRODUCTIONS IN LUXEMBOURG WITH AUTO TRACKING

Leading Luxembourg production company, FreeLens, uses the CR-N700's Auto Tracking to streamline its virtual multi-cam solutions for TV, corporate productions and beyond.

Company Name: FreeLens Media & Studio
Industry: AV Content Production
Founded: 1998
Location: Luxembourg
Services: TV Production, Studio AR and VR
Website: www.freelenstv.com
Products purchased: CR-N700 (6 units), RC-IP100 Controller
Canon installation partner: Canon Europe

Objectives

- Upgrade to a PTZ camera with 4K UHD image quality, Auto Tracking and smooth, precise control
- Elevate multi-cam production offering with top-of-the-range PTZs
- Match and maintain visual uniformity across studio, handheld and PTZ cameras
- Ensure compatibility with Pixotope software for Virtual and Augmented reality (AR&VR) content
- Integrate with FreeD protocol for virtual productions

Challenges

- Working seamlessly in a green screen studio set-up for VR/AR productions
- Finding a PTZ that would integrate quickly with Pixotope to make sure the virtual scene moves with the camera
- Following a speaker automatically with smooth movements
- Competing with communications agencies for new business

Approach

FreeLens were not satisfied with the mechanical movement and image quality of its previous PTZ cameras. They looked at alternatives on the market, including enquiring about the new Canon PTZ range. The local Canon representative, based on their broadcast production needs, recommended and demonstrated the top end Canon CR-N700 camera. After the first introduction, a demo kit was delivered quickly for week-long testing. Impressed by what they saw, FreeLens purchased six CR-N700s along with the RC-IP100 Controller.

Scope

FreeLens works daily for TV stations, institutions and international companies around Europe. Virtual studio production is a core part of that delivery, as well as breaking news and event video production. Born from a TV background, they create everything in-house with their own extensive kit, whether it's in their green screen studio or on location.

Canon

Results

- Revolutionised the agency's virtual production capabilities
- Improved 4K image quality that was easy to match with Canon broadcast lenses
- Easy integration with both third-party hardware and software
- Maximised output with six PTZs controlled by one operator

Among Luxembourg's media landscape, FreeLens is one of the country's most recognised production companies with a diverse portfolio comprising multi-cam TV productions, corporate videos, live streams, and cutting-edge AR/VR content.

Known for their dedication to innovation, FreeLens has elevated its production capabilities to new heights with a set of 6 Canon CR-N700 PTZ cameras. Designed for broadcast, the PTZs have not only enhanced the visual quality of their projects but also enabled the team to explore the exciting possibilities of mixed and extended reality in their own green screen studio.

One operator, six PTZs

"In our virtual studio, the Canon PTZs are the key elements," says Yann Figuet, Founder of FreeLens. "We have 6 CR-N700 PTZs and one XD Motion tracked arm equipped with another camera brand."

A single operator-controlled, remote solution became a cornerstone of FreeLens's efficiency. What impressed the team was Canon's ability to quickly integrate with Pixotope, a virtual production software used to create live AR, and VR content. After some initial tests with a demo unit, Yann's team was able to validate the compatibility of the FreeD protocol from Canon with the Pixotope machines – and get a workflow up and running in three weeks. "The Canon PTZs are controlled by several devices. The shading is managed by either by

the Canon RC-IP100 or a Skaarhoj PTZ Extreme controller. The PTZ functions are mostly managed by the IOBot solution from XD Motion.

"One operator is able to start, store and program all camera movements, positions, focus and zoom on a central touch screen," explains Yann. "This is a main advantage to have an overview of all your camera sources on one screen with the thumbnails of each of the framing. Integration and set-up of the CR-N700 with third-party equipment was very easy due to the IP capabilities of the Canon cameras."

More engaging virtual productions

Producing TV shows of all shapes and sizes brings its own unique demands.

"Airing on RTL TV and on the web next year, the 'Take Off' show is a real technical challenge where real world and virtual content are integrated to bring more fun and action into the show," Yann explains. "A total of 19 cameras are on set, among them the 6 Canon CR-N700s. All our other studio cameras are all equipped with Canon broadcast lenses, and it helps a lot in the matching of all cameras together."

"Part of the studio is made of a virtual world where science specialists give technical explanations. This is the opportunity to include 3D-tracked info to show very small details or to include tracked motion design."

Each production requires a bespoke solution. Now FreeLens can call upon a mix of studio, handheld and top-of-the-range PTZ cameras. "The goal is always to match all these cameras to get the same picture look. With previous models, it was always a challenge to match colours, details and general

picture. Our shaders were never 100% satisfied before. The Canon CR-N700 has a very large numbers of parameters to be able to go deeply into the settings and refine the matching of all the camera sources. We loved Canon broadcast lenses for years and we are happy that we could integrate now PTZs cameras into our workflow to improve our production capabilities."

Next-level features

The Auto Tracking feature was a no-brainer option for Yann and his team. Following a person on stage during a presentation was always a challenge. Not satisfied with joystick sensitivity of previous PTZs to follow someone smoothly, it ended up being a studio camera with an operator for close-up shots.

"Today with the intelligent Auto Tracking system, we can create smooth movements to follow the speaker. The operator can easily set the parameters to have accurate Auto Tracking results. The selection of exclusion area avoids the camera to follow the speaker while moving out of stage for example. Plus, you can finely adjust the 10 levels of sensitivity for slow or quick movements," says Yann.

As a self-confessed 'old-school' cameraman, Yann was initially against auto focus while using a broadcast camera. However, seeing the results of the CR-N700 left him very impressed. "The Dual Pixel CMOS AF result is better than the human operator, so I really approve the use of auto focus on the Canon. This is also the only model in our equipment stock where our head of technic has validated the AF use.

The FreeLens team also takes advantage of the extra flexibility afforded by the crop function, which offers two video feeds from a single camera, while maintaining HD. "The software is very user-friendly and you can use one camera to get several shots, increasing our output."

Outstanding performance

The powerful HDR imagery has also proved a hit, Yann says. "The 4K image quality is a real plus, especially in low-light environments. We really appreciate the sensitivity of the sensors. We also use the cameras on location for conferences, concerts, on stage show, where we can't control the lighting level. It's never what you expect. Yet the CR-N700s keep brightness and vivid colours till a very low level of light."

It's not just the camera performance that has left an impression. The reactiveness of the Canon support team has been a big bonus. "In less than a week we received a demo unit to test and try the integration in our virtual workflow. The R&D Canon team is also very responsive and some firmware updates have already been implemented following our first feedback. Our two technical teams are permanently in contact to increase the capabilities of the camera and to get the best out of it!"

And what of the other models? According to Yann, the team doesn't want to use them anymore. "Our production team and also our clients saw the difference and everyone is very happy with this new gear! We organised training for our freelancers and everyone feels really at ease with the Canon CR-N700."

From mixed reality TV shows to web and corporate productions, FreeLens is now able to provide high-quality solutions thanks to the addition of Canon CR-N700s to their offering. As a service provider, the focus for Yann is always on improving quality for clients. This new expanded scope of automated solutions means FreeLens can deliver even better quality for the same cost as before, keeping them competitive in an ever-evolving industry.
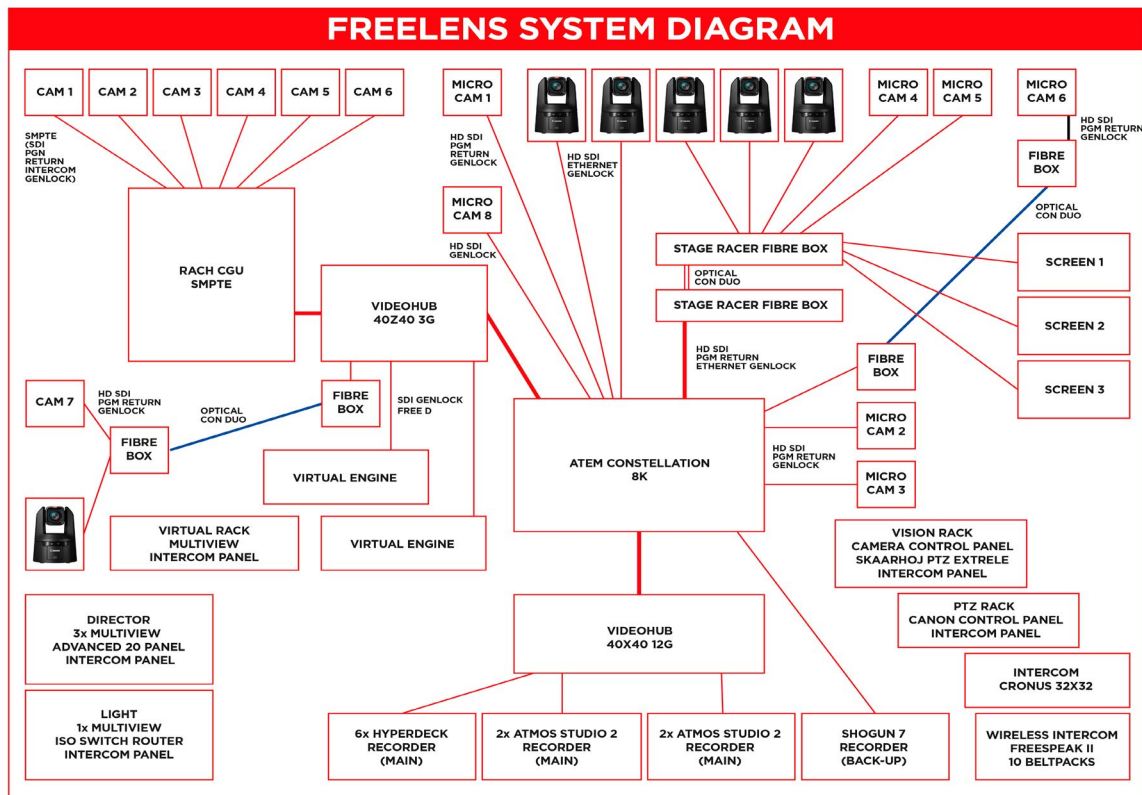
Canon

The Canon Solution

CR-N700 PTZ Cameras
- 1 Inch-Type CMOS Sensor
- 4K 60P Image Quality
- 15x Optical Zoom with Image Stabilisation
- Dual Pixel CMOS Auto Focus with EOS iTR AFX
- HDR Support
- Multiple in-built protocols such as SRT and NDI|HX
- HDMI, 12G-SDI, 3G-SDI, Dual XLR and IP Connectivity

RC-IP100 Controller
- 7-inch touchscreen
- Multi-function joystick
- Professional zoom rocker
- Customisable controls
- Flexible connectivity

FREELENS SYSTEM DIAGRAM

CAM 1	CAM 2	CAM 3	CAM 4	CAM 5	CAM 6		MICRO CAM 1				MICRO CAM 4	MICRO CAM 5	MICRO CAM 6

SMPTE (SDI PGN RETURN INTERCOM GENLOCK)

HD SDI PGM RETURN GENLOCK

HD SDI PGM RETURN GENLOCK

HD SDI ETHERNET GENLOCK

FIBRE BOX

RACH CGU SMPTE

MICRO CAM 8

HD SDI GENLOCK

VIDEOHUB 40Z40 3G

STAGE RACER FIBRE BOX

OPTICAL CON DUO

OPTICAL CON DUO

STAGE RACER FIBRE BOX

SCREEN 1

SCREEN 2

SCREEN 3

CAM 7

HD SDI PGM RETURN GENLOCK

OPTICAL CON DUO

FIBRE BOX

SDI GENLOCK FREE D

HD SDI PGM RETURN ETHERNET GENLOCK

FIBRE BOX

FIBRE BOX

VIRTUAL ENGINE

ATEM CONSTELLATION 8K

HD SDI PGM RETURN GENLOCK

MICRO CAM 2

MICRO CAM 3

VIRTUAL RACK MULTIVIEW INTERCOM PANEL

VIRTUAL ENGINE

VISION RACK CAMERA CONTROL PANEL SKAARHOJ PTZ EXTRELE INTERCOM PANEL

DIRECTOR 3x MULTIVIEW ADVANCED 20 PANEL INTERCOM PANEL

VIDEOHUB 40X40 12G

PTZ RACK CANON CONTROL PANEL INTERCOM PANEL

INTERCOM CRONUS 32X32

LIGHT 1x MULTIVIEW ISO SWITCH ROUTER INTERCOM PANEL

6x HYPERDECK RECORDER (MAIN)

2x ATMOS STUDIO 2 RECORDER (MAIN)

2x ATMOS STUDIO 2 RECORDER (MAIN)

SHOGUN 7 RECORDER (BACK-UP)

WIRELESS INTERCOM FREESPEAK II 10 BELTPACKS

/Canon

/Canon

/Canon Emea

Canon