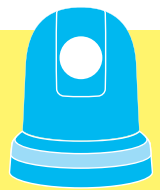




PTZ Camera Application Guidebook

Enhancing video experiences in diverse settings, including events, sports production/distribution, corporate online meetings and events, and hybrid classrooms



Effective Use of PTZ Cameras in Tune with the Times

TREND 1

Events/Sports

□ IP-based Smart Live Production



As live streaming of events and sports becomes more common, the live production industry is undergoing a wave of efficient IP-based smart operations for high-quality video production. Panasonic PTZ cameras enable multi-angle shooting with minimal staff and provide a wide selection of cameras to meet your needs.

Advantages of IP-based smart video production include:

- Location-independent video production.
- Simplified equipment setup.
- Allows low-cost multi-angle shooting with a small number of operators.

TREND 2

Corporate/Business

□ Hybrid Conferences and Seminars



While in-person meetings and seminars have returned, remote sessions continue to play a crucial role. In these scenarios, remote meetings must deliver the same or even better quality for participants compared to face-to-face interactions. High-quality PTZ cameras excel in capturing not only the speaker's facial expressions but also the ambiance of the venue, enhancing the realism of remote meetings and webinars.

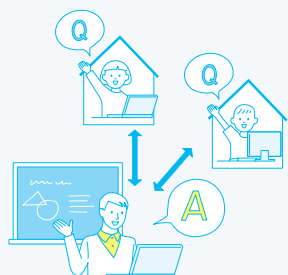
Advantages of Using PTZ Cameras for Conferences and Seminars:

- High-quality images that clearly displays on the presenter's screen.
- Lightweight and compact design for versatile installation options.
- Allows operation and distribution with a minimal staff.

TREND 3

Education/Schools

□ Smart Classrooms Offering More Advanced Learning Environments



Now that hybrid classrooms are the norm, there is a need to build smart classrooms that deliver a higher quality of instruction using video. With their wide variety of functions, PTZ cameras can play an active role in delivering a high-quality classroom experience while avoiding the constraints of time and space.

Advantages of Smart Classroom:

- High-quality images clearly show the text on the instructor's whiteboard, helping to achieve deeper understanding.
- Automatic tracking software enables realistic video shooting even in the absence of a camera operator.
- Promotes digital transformation in education by utilizing statistical data from distributed videos.

What Are People Expecting from Online Distribution in the Future?

While online distribution in the events/sports industry is becoming more prevalent, the standards demanded by viewers are rising.

□ The Unique Advantages of Online Distribution

Q. What do you expect from live music streaming in the future?

(Number of responses: 2,115)

"I think there are people who cannot go to live concerts for a number of reasons, so even after the COVID pandemic has passed, I hope that hybrid events combining streaming and on-site viewing will continue to be held as far as possible."

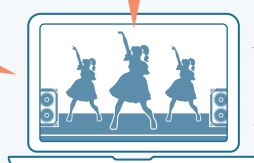
Female in her 40s

"I want to see live performances with realistic camera work that makes me feel as if I am on stage."

Female in her 30s

"I want video where I can see everyone on the stage and also where I can see only the people I want to see, from multiple angles."

Female in her 30s



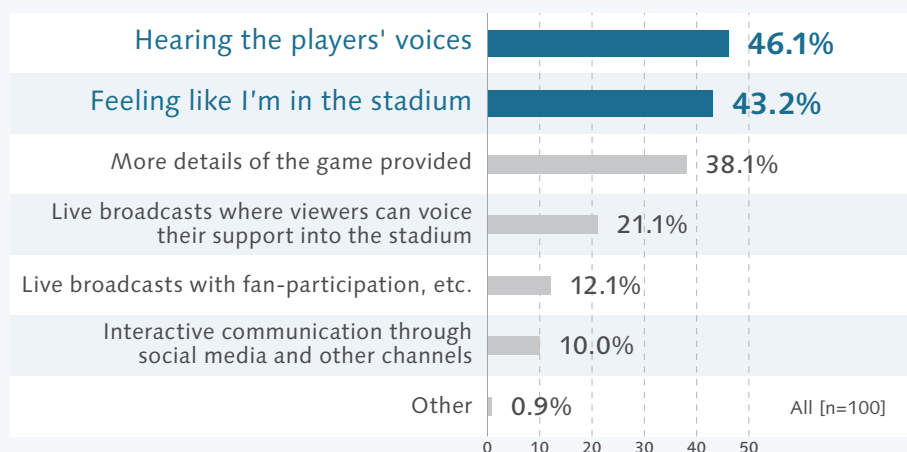
Source: "Report on Survey of Attitudes Toward Live Music Streaming" by SKIYAKI Co. and SKIYAKI LIVE PRODUCTION Co.

□ Realism Is Expected in Live Sports Broadcasts

It was expected that sports events would continue to be held without spectators or with limited numbers of spectators for the foreseeable future. What many people expected from live broadcasts is a sense of "realism." In addition, now that people have experienced the convenience that only online viewing can offer, we believe that online distribution will coexist with live viewing even in the post-COVID era.

Q. Please select what you expect from future baseball broadcasts.

(multiple answers allowed)



Source: "Survey on the Opening Game of the 2020 Professional Baseball Season" by SKY Perfect! (Japanese communications satellite broadcaster)

**The video standards people expect are rising;
equipment that can provide
high quality images should be selected.**

Advantages of Online Distribution in Events/Sports Industry

Among the various advantages of going online, the three main ones are as follows:

1 Video Experience Unique to Online Distribution

Meets diverse viewer needs

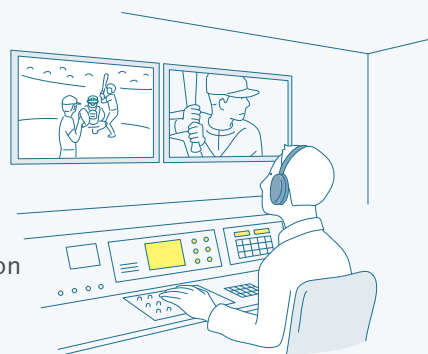
- ex.) ■ Interactive video distribution
■ Video delivery utilizing AR/VR
■ Video on demand, etc.



2 Workflow Reform

Supports the creation of a video distribution flow for sporting and other events that meets the needs of the new normal era.

- ex.) ■ Onsite labor saving and automation
■ Location-independent video shooting utilizing AR/VR



3 Viewing Data Utilization

When viewing data is analyzed from different angles, it can be utilized in video production and create new business opportunities.



**Utilizing online distribution
for new video and event experiences
that meet the needs of the new normal era.**

Benefits of PTZ Cameras that Ordinary Stationary Cameras Cannot Offer

When considering online video distribution, your initial first thought is to use an ordinary stationary camera. However, by implementing a PTZ camera system, you can improve the efficiency of your video production and distribution.

Shooting with stationary camera

Difficult to adapt to the installation environment.



Shooting with PTZ camera

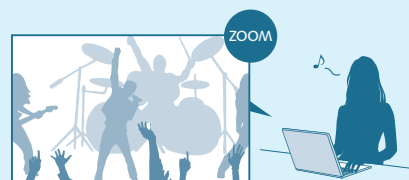
Compact, unobtrusive and quiet.
Does not disrupt the atmosphere of the place.



When an entire scene is captured from a wide angle, it is difficult to see the parts you need.



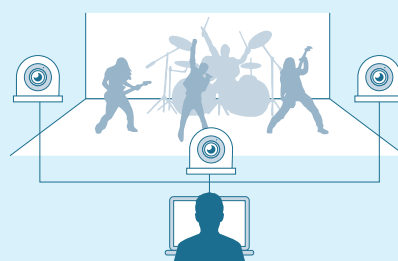
Zoom in on the desired area with the touch of a button.



Requires multiple camera operators to capture many points.



Remote control allows one person to manage multiple PTZ cameras.



PTZ cameras enable production of videos that are comparable to the real thing.

POINT 1 Video Production and Distribution that Conveys the Atmosphere of an Event as It Is

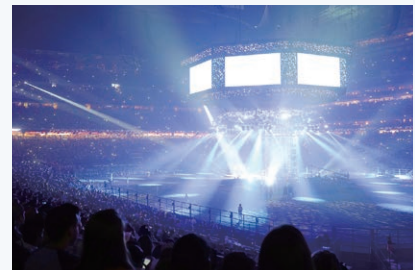
□ Detailed Camera Work That Does Not Miss Important Scenes

Smooth PTZ (pan, tilt, zoom) camera operation with high-precision image stabilization minimizes blurring even when zooming in at high magnifications, allowing the camera to move in line with the movement of the operator's hand. Even with fast-moving sports, you will never miss an important scene. The PTZ camera can be quickly directed to a pre-set point, such as the front of the football goal post, at the touch of a button.



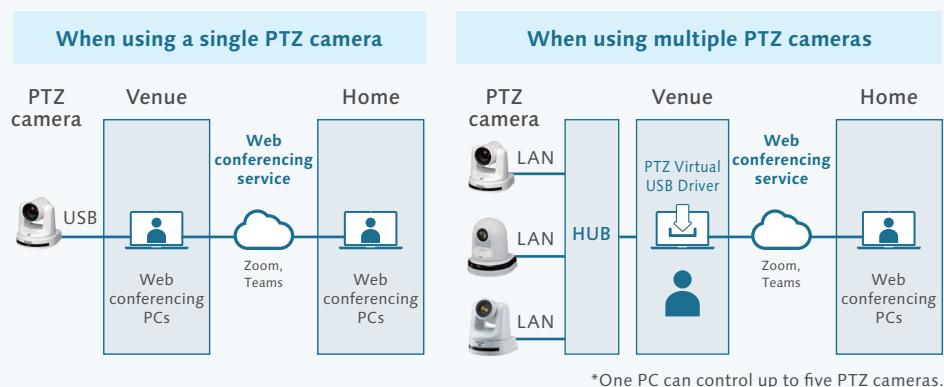
□ Location-independent Installation

PTZ cameras can be installed on a tripod or they can be ceiling-mounted, making them suitable for diverse situations both indoors and outdoors. The compact main unit can also be installed in locations that would be difficult for a camera operator to access.



□ Software Linkage for Increased Convenience

The Auto Tracking Software that automatically tracks and captures the speaker incorporates face recognition and deep learning technology. Highly accurate automatic tracking enables efficient camera work with a minimum number of people. In addition, a variety of free software is available offering enhanced convenience for seminars, webinars, and other events; this includes PTZ Control Center, which allows multiple PTZ cameras to be centrally controlled from a PC, and PTZ Virtual USB Driver, which allows PTZ cameras on a network to be used as USB cameras.



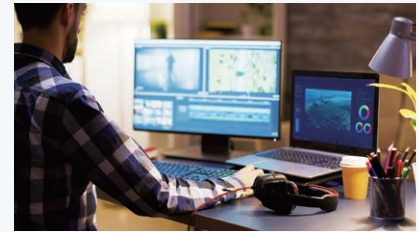
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POINT 2 Easy Operation and Online Distribution with Fewer People

Enables Workstyle Reform

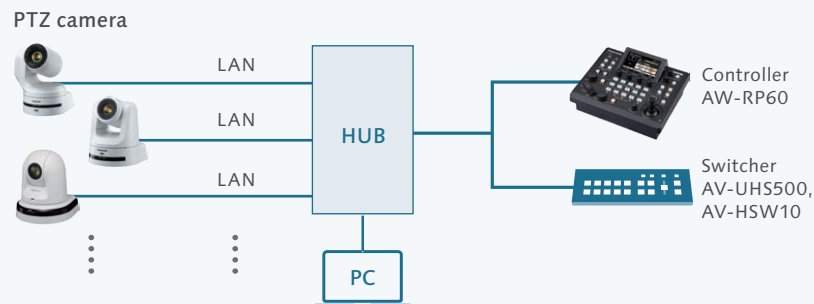
Easy PTZ camera operation allows a single person to quickly and easily record and check video. Differences in video quality resulting from camera operators with varying skill levels can be also minimized.



Single-cable Operation Reduces Streaming Interruptions Caused by Connectivity Problems

Video equipment can be connected via a network, using a single LAN cable to transmit video, audio, and control signals, etc. Since the number of cables is reduced, connectivity problems, such as interruption of video shooting due to cable disconnections, can be minimized. This also reduces the time and manpower required to set up and disassemble equipment for temporary video shooting at events.

One controller can control up to 200 PTZ cameras.



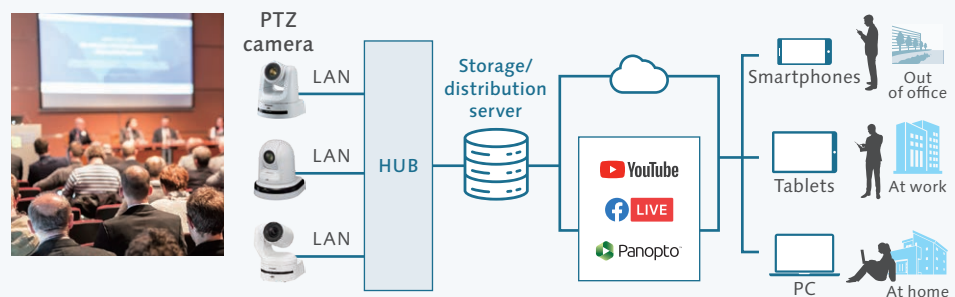
Compact and Quiet Design That Does Not Intrude

The main unit is compact, so it can be installed in the smallest of spaces. The quiet design ensures peace of mind even when shooting videos during solemn occasions.



Easy Live and On-demand Streaming

Both live streaming of real-time Q&A sessions and on-demand streaming that can be viewed at any time can be easily provided. In addition, content can be streamed directly to the client's own distribution platform.



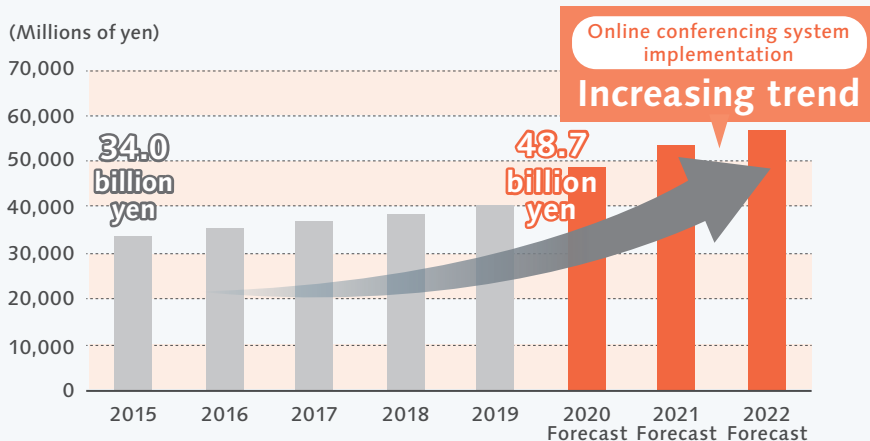
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Office Work Is No Longer the Norm

The new normal has arrived, bringing changes to the way we work. Traditional office work, once common, serves as an example, and the concept of the 'workplace' is evolving.

Implementation of Online Conferencing Systems Will Continue to Grow

The use of online conferencing has expanded rapidly due to the COVID pandemic and will continue to increase in 2021 and beyond.



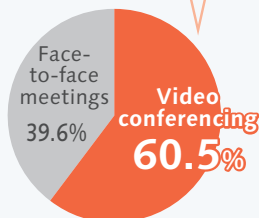
Source: "Video/Web Conferencing System Market Size Trends and Forecasts" by Yano Research Institute Ltd.

Many Employees Favor Going Online

Many benefits have been recognized by holding both meeting and events online.

Q. Which do you think is more efficient— face-to-face meetings or video conferencing?

More than half of respondents think "online meetings are more efficient."



Reference: "Survey of Attitudes to Video Conferencing" by GMO Research Corporation

Advantages of online events as perceived by organizers.

Many have favorable opinions of online events.

Reach a different audience (77.2%)

No venue costs (69.5%)

Easy to organize (60.1%)



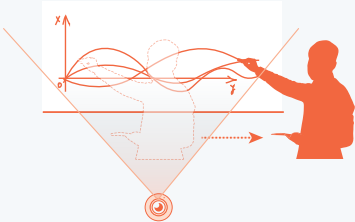
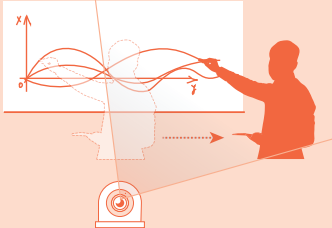
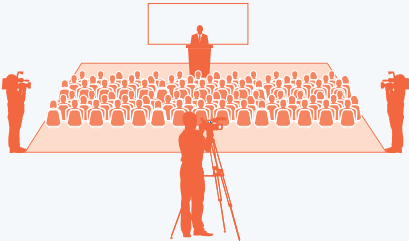
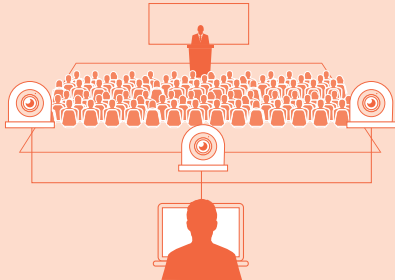
Can expect more participants (59.6%)

Reference: "Survey of Online Events" by Peatix Japan K.K.

Remote work is gradually spreading,
leading to location-independent working styles.

Benefits of PTZ Cameras that Ordinary Stationary Cameras Cannot Offer

If you are considering cameras for online video distribution, your first thought is probably to use an ordinary stationary camera. However, by installing a PTZ camera system you can take video production and distribution to the next level.

Shooting with stationary camera	Shooting with PTZ camera
Webinars/Conference	
<p>When the entire venue is captured from a wide angle, small letters on whiteboards and other materials cannot be seen.</p> 	<p>A zoom function allows key parts of the presentation to be shown to participants.</p> 
<p>When a presenter is captured close up, it is hard to keep them in the frame when they move.</p> 	<p>A PTZ camera can follow them if they move.</p> 
Internal Events	
<p>Multiple camera operators are needed to capture many points.</p> 	<p>Remote control allows a single operator to manage multiple PTZ cameras.</p> 

Use of a PTZ camera enables smoother video shooting and distribution.

POINT 1 Production and Distribution of Video That Clearly Conveys Even the Nuances of Facial Expressions

□ Detailed Camera Work for Online Conferencing That Conveys the Sense of Being There

Smooth PTZ (pan, tilt, zoom) camera operation, combined with high-precision image stabilization, ensures minimal blurring even when zooming in at high magnifications. With a simple touch of a button, the PTZ camera can swiftly focus on preset points, such as a whiteboard, enabling instant display of desired visuals to the audience. This capability ensures that critical moments during seminars and conferences are conveyed without omission.



□ 4K Image Quality That Reproduces Facial Expressions and Nuances

The PTZ camera can capture images that closely resemble the real thing, such as the facial expressions of participants and the colors of the merchandise. Backlight compensation is available even in poor shooting environments, such as near windows where light enters the room.



□ Software Linkage Makes Meetings Even Smoother

The highly accurate Auto Tracking Software, which automatically tracks and captures the speaker, incorporates face recognition and deep learning technology to facilitate efficient camera work. Additionally, various free software options are available, offering enhanced convenience. These include PTZ Control Center, enabling centralized control of multiple PTZ cameras from a PC, and PTZ Virtual USB Driver, allowing PTZ cameras on a network to function as USB cameras.



Up to 5 PTZ cameras can be controlled by a single PC.

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POINT 2 Easy Operation and Stable Delivery Allowing Efficient Use

□ Enables Workstyle Reform

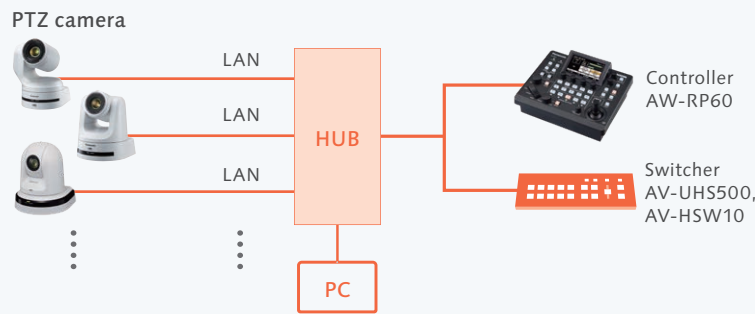
Easy PTZ camera operation allows even a single non-professional to quickly and easily record and check video. There is no need to worry about differences in video quality that may result from camera operators with varying skill levels.



□ Single-cable Operation Reduces Meeting Interruptions Caused by Connectivity Problems

Video equipment can be connected via a network, using a single LAN cable to transmit video, audio, control signals, etc. This reduces connectivity problems such as the interruption of a meeting due to cables becoming disconnected.

One controller can control up to 200 PTZ cameras.



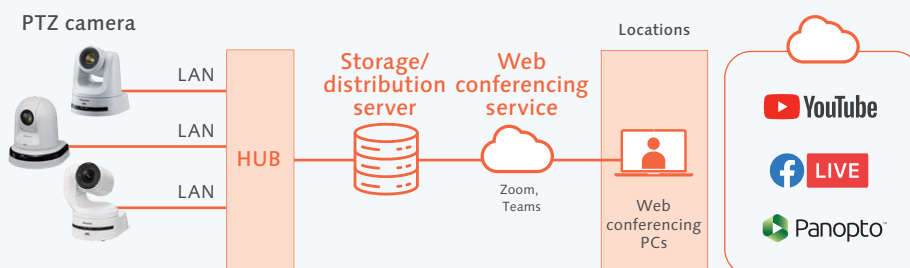
□ Compact and Quiet Design That Doesn't Disrupt Conference Atmosphere

The main unit is compact, so it can be installed in the smallest of spaces. The PTZ camera can be easily transported from one meeting room to another, while the quiet design allows meetings and business negotiations in solemn atmospheres to be captured with ease.



□ Easy Provision of Live and On-demand Webinars

Both live webinars of real-time Q&A sessions and on-demand webinars that can be viewed at any time can be easily provided. In addition, content can be streamed directly to the client's own distribution platform.



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Online Education Is Not a Temporary Boom and Will Accelerate

Online education gained prominence as a countermeasure against the COVID pandemic, but even now that schools have reopened, it is expected to take root as a new form of learning.

□ Almost All Universities Offer Online Classes

The COVID pandemic has accelerated the shift to online education. It is now the norm.

Q. Does your university offer online classes?

Not, they don't.
3%

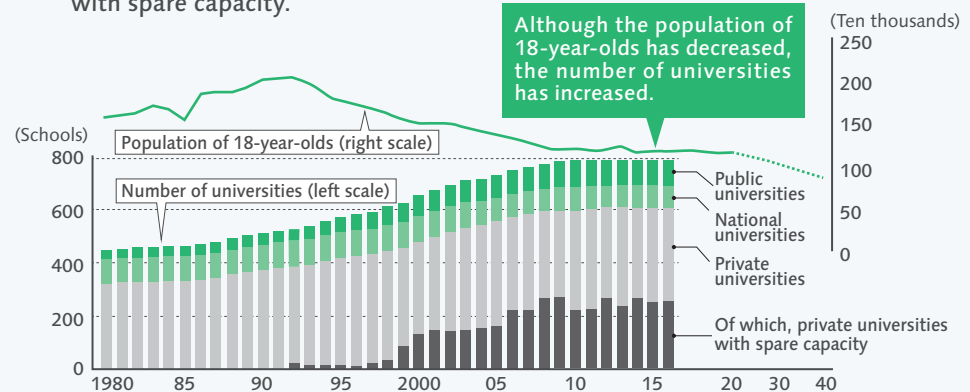
Yes, they do.
97%

Source: "Survey of the Implementation Status of Online Classes at Universities" by e-Learning Strategic Research Institute

□ Online Education Necessary for the New Era of Learning

In an era of declining enrollment in universities, competition to attract students is intensifying. Against this backdrop, the key to competitiveness in this new era of learning will be the development of an environment that allows students to participate in classes in a flexible manner and from remote locations.

■ Declining birthrates have led to an increase in the number of universities with spare capacity.



Source: Compiled from data from the Ministry of Education, Culture, Sports, Science and Technology by Weekly Asahi, October 27, 2017.

Demand for online education is expected to increase further in the future.

Online Utilization Bringing Diverse Changes in the Educational Field

Among the various advantages of online education, the three main ones are as follows:

1 Students Can Join from All Over the World

Online classes not only enable remote delivery; they also improve the quality of education. Since there are no physical, spatial or time constraints, a higher number of people are able to participate. Also, the fact that there is virtually no limit to the number of participants will enable more people to attend than in an offline event.



Example:

People living in remote areas

People who have to receive medical treatment at home due to illness or injury

2 Expanding the Variety of Classes

Making good use of the functions of the PTZ camera and peripheral devices for enhanced convenience.

Example:

Accepting questions from participants in real time

Reviewing support for absent students by recording the class (on-demand delivery)

Easy shooting even by a single teacher



3 Performance Data Utilization



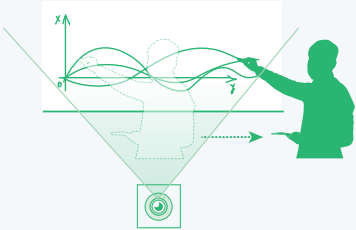
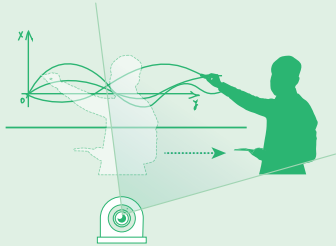
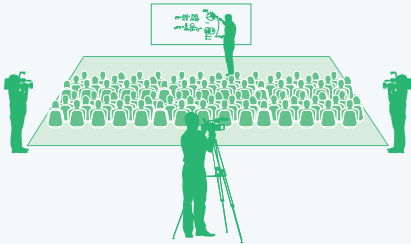
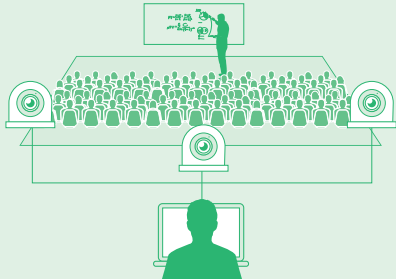
In the case of online classes, it is easy to ascertain who accessed what information, when, and what kind of opinions and questions were expressed. Various uses can be made of this data, such as following up with students according to their progress and discovering business opportunities.



**Not only for remote delivery,
but also for improving the quality of classes.**

Benefits of PTZ Camera Used during Online Classes That Ordinary Stationary Camera Cannot Offer

When considering a camera for online classes, your initial instinct might be to use a stationary camera. Yet, by installing a PTZ camera system, you can enhance the comfort of your classes.

Online class with stationary camera	Online class with PTZ camera
<p>When the entire teaching podium is captured from a wide angle, small letters on the whiteboard cannot be seen.</p> 	<p>A zoom function allows you to show the key parts of the scene to the students.</p> 
<p>When the teacher is captured close up, it is hard to keep them in the frame when they move.</p> 	<p>A PTZ camera can follow them if they move.</p> 
<p>Multiple camera operators are normally required to capture multiple points.</p> 	<p>Remote control allows one person to manage multiple PTZ cameras.</p> 

PTZ cameras ensure both students and teachers are happy and comfortable in the classroom.

Even Small Text and Teachers' Facial Expressions are Conveyed in Fine Detail!

High Image Quality Reproduces the Realism of the Classroom

The PTZ camera can capture and distribute images with realistic, life-like colors, including the natural color of the teacher's face. This is likely to enhance students' satisfaction levels.



Freely Zoom In and Out from Entire Classroom to Whiteboard Text and Teacher's Hand

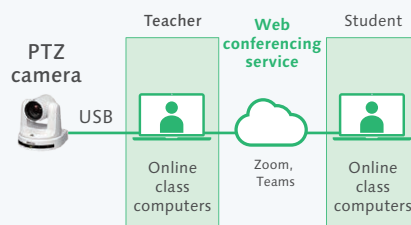
Smooth PTZ (pan, tilt, zoom) camera operation, coupled with high-precision image stabilization, ensures minimal blurring whether you're using high-power zoom to capture details like text or wide zoom to encompass the entire classroom. At the touch of a button, the PTZ camera can swiftly focus on preset points, such as the teacher or whiteboard, seamlessly presenting the desired image to students without disrupting the class flow.



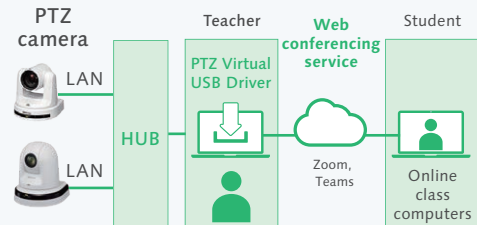
Software Linkage for Even Higher Quality Classes

The highly accurate Auto Tracking Software, which automatically tracks and captures the teacher, integrates face recognition and deep learning technology to optimize camera performance. Additionally, a range of free software options enhances convenience. These include the PTZ Control Center, enabling centralized control of multiple PTZ cameras from a PC, and the PTZ Virtual USB Driver, allowing network-connected PTZ cameras to function as USB cameras.

When using a single PTZ camera



When using multiple PTZ cameras



* Up to 5 PTZ cameras can be controlled by one PC.

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POINT 2 Easy Operation, Even for Veteran Teachers

Intuitive Operation by a Single Teacher

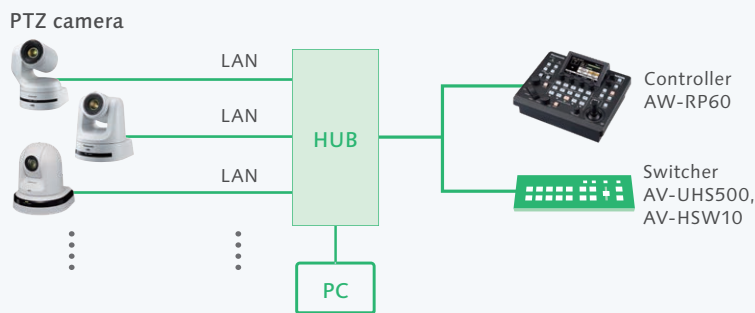
Easy PTZ camera operation allows a single teacher to quickly and easily record and check videos. There is no need to worry about differences in video quality that may result from camera operators with varying skill levels.



Single-cable Operation Reduces Class Interruptions Caused by Connectivity Problems

Video equipment can be network-connected using a single LAN cable for transmitting video, audio, control signals, and more. This minimizes connectivity issues, such as interruptions during a class due to cable disconnections.

One controller can control up to 200 PTZ cameras.



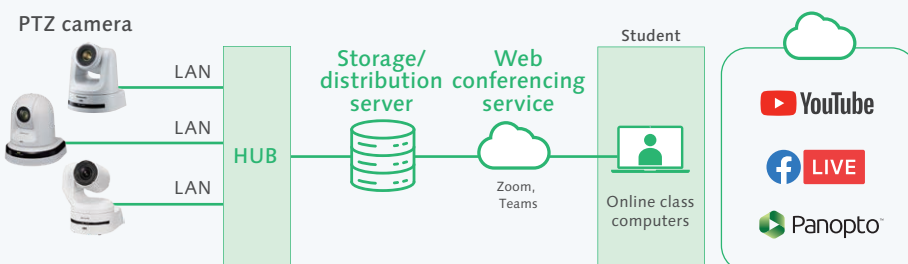
Compact and Quiet Design That Does Not Overwhelm Students

The main unit is compact, so it can be installed in the smallest of spaces. The quiet design allows both teachers and students to focus on the class as usual without being distracted by the camera.



Easy Provision of Live Streaming and On-demand Classes

Both live streaming of real-time Q&A sessions and on-demand classes that can be viewed at any time can be easily provided. In addition, content can be streamed directly to the client's own distribution platform.



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Product Lineup

We offer products that can be used in a variety of scenarios, including the streaming of sports and other events, corporate seminars and conferences, and hybrid classes.

	Events/Sports	Corporate Events	Educational Events
High-end Model  AW-UE160  AW-UE150  AW-UE100	Live Events Concert halls Large halls Hotel banquet facilities Sporting Events Stadiums	Lectures Corporate Events Conference halls Large conference rooms (from 30 people) Executive conference rooms	Large-scale Lectures School Events Large auditoriums School and college stages
	Small and Medium-sized Events Medium-sized halls Parliament	Webinars Workshops Medium conference rooms (10-29 persons) Seminar rooms	Online Classes Large to medium-sized classrooms
Standard Model  AW-UE80  AW-UE50  AW-UE40		WEB Conferencing Small conference rooms (5-9 persons) Meeting spaces	Online Classrooms Regular classrooms
Entry Model  AW-UE20			

PTZ Camera System Optional Products

Remote Camera Controller

Remote Controller with high operability ensured through touch-panel GUI monitor and a new type of joystick



Remote Camera Controller
AW-RP150

Equipped with a GUI menu screen for clear visibility and a joystick for intuitive control



Remote Camera Controller
AW-RP60



Infrared Wireless Remote Control
AW-RM50AG

Software

Auto Tracking Software Key

AW-SF100 Standalone / Web Application Versions
 AW-SF200 Server Versions
 AW-SF202 2 Additional Licenses
 AW-SF203 3 Additional Licenses

Visual Preset Software Key

AW-SF300
 • GUI screen that enables the subject of multiple PTZ Cameras to be switched with a single click of an icon
 • Automatic switching of camera angles by voice is possible by linking remote cameras and wireless microphones

SMPTE ST 2110 Activation Software Key

AW-SFU60
 * AW-UE160W/K only.

Free Software



PTZ Control Center
 Controls multiple PTZ cameras from PC
















PTZ Virtual USB Driver
 Software that converts PTZ camera on your network into Super Web cam



EasyIP Setup Tool Plus
 Software for camera detection, network settings and firmware update

PTZ Camera System Specification Comparison

As of April, 2023

		High-end				Standard		Entry			
				EU and US only model 			 	 	 	 	
Model		AW-UE160W/K	AW-UE150W/K	AW-HE145W/K	AW-UE100W/K	AW-UE80W/K	AW-UE50W/K AW-UE40W/K	AW-UE20W/K	AW-HE20W/K	AW-UE4WG/KG	
Camera Body Color		Black (K) or Pearl White (W)	Black (K) or Pearl White (W)	Black (K) or Pearl White (W)	Black (K) or Pearl White (W)	Black (K) or White (W)	Black (K) or White (W)	Black (K) or White (W)	Black (K) or White (W)	Black (K) or White (W)	
General											
Sensor		1-type (1")*1 4K MOS	1-type (1") 4K MOS	1-type (1") Full-HD MOS	1/2.5-type (1/2.5") 4K MOS	1/2.5-type (1/2.5") 4K MOS	1/2.5-type (1/2.5") 4K MOS	1/2.8-type (1/2.8") 4K MOS	1/2.8-type (1/2.8") MOS	1/2.5-type (1/2.5") 4K MOS	
Effective Pixels		Approx. 9.62 megapixels	Approx. 20.18 megapixels	Approx. 20.18 megapixels	Approx. 8.49 megapixels	Approx. 8.49 megapixels	Approx. 8.49 megapixels	Approx. 8.46 megapixels	Approx. 8.46 megapixels	Approx. 8.49 megapixels	
Optical Zoom		20x	20x	20x	24x	24x	24x	12x	12x	—	
i.Zoom		UHD 24x, FHD 32x	UHD 24x, FHD 32x	FHD 32x	UHD 28x, FHD 36x	UHD 28x, FHD 36x	UHD 28x, FHD 36x	Approx. 16x	Approx. 16x	—	
Digital Zoom		10x	10x	10x	10x	10x	10x	4x	4x	4x	
FOV		Horizontal	75.1° (W) to 4.0° (T)	75.1° (W) to 4.0° (T)	75.1° (W) to 4.0° (T)	74.1° (W) to 3.3° (T)	74.1° (W) to 3.3° (T)	74.1° (W) to 3.3° (T)	71° (W) to 6° (T)	71° (W) to 6° (T)	111° (LDC OFF)*2
		Vertical	46.7° (W) to 2.3° (T)	46.7° (W) to 2.3° (T)	46.7° (W) to 2.3° (T)	46.0° (W) to 1.9° (T)	46.0° (W) to 1.9° (T)	46.0° (W) to 1.9° (T)	43° (W) to 3° (T)	43° (W) to 3° (T)	75° (LDC OFF)*2
		Diagonal	82.8° (W) to 4.6° (T)	82.8° (W) to 4.6° (T)	82.8° (W) to 4.6° (T)	81.8° (W) to 3.8° (T)	81.8° (W) to 3.8° (T)	81.8° (W) to 3.8° (T)	79° (W) to 7° (T)	79° (W) to 7° (T)	120° (LDC OFF)*2
Focus		Auto / Manual	Auto / Manual	Auto / Manual	Auto / Manual	Auto / Manual	Auto / Manual	Auto / Manual	Auto / Manual	Single focus	
Horizontal Resolution		4K: 1,600 TV lines Typ (Center area) HD: 1,000 TV lines Typ (Center area)	4K: 2,000 TV lines Typ (Center area) HD: 1,000 TV lines Typ (Center area)	HD: 1,000 TV lines Typ (Center area)	4K: 1,500 TV lines Typ (Center area) HD: 1,000 TV lines Typ (Center area)	4K: 1,500 TV lines Typ (Center area) HD: 1,000 TV lines Typ (Center area)	4K: 1,500 TV lines Typ (Center area) HD: 1,000 TV lines Typ (Center area)	4K : 1,400 TV lines Typ (Center area) HD: 1,000 TV lines Typ (Center area)	HD: 1,000 TV lines Typ (Center area)	4K : 1,400 TV lines Typ (Center area)*3 HD: 900 TV lines Typ (Center area)*3	
Standard Sensitivity		F14 / 2,000 lx (Low Light) F11 / 2,000 lx (Normal)	F12 / 2,000 lx (High Sens) F9 / 2,000 lx (Normal)	F12 / 2,000 lx (High Sens) F9 / 2,000 lx (Normal)	F5.6 / 2,000 lx (High Sens) F4 / 2,000 lx (Normal)	—	—	—	—	—	
Gain		Auto, -6 dB to 12 dB (1 dB step)	Auto, -3 dB to 36 dB (1 dB step) (Super Gain function equipped: 37 dB to 42 dB)	Auto, -3 dB to 36 dB (1 dB step) (Super Gain function equipped: 37 dB to 42 dB)	Auto, 0 dB to 36 dB (1 dB step) (Super Gain function installed: 37 dB to 42 dB)	Auto, 0 dB to 36 dB (1 dB step) (Super Gain function installed: 37 dB to 42 dB)	Auto, 0 dB to 36 dB (1 dB step) (Super Gain function installed: 37 dB to 42 dB)	Auto, 0 dB to 42 dB (3 dB step)	Auto, 0 dB to 42 dB (3 dB step)	Auto, 0 dB to 42 dB (3 dB step)	
Control		Serial / IP / IR	Serial / IP / IR	Serial / IP / IR	Serial / IP / IR	Serial / IP / IR	Serial / IP / IR / USB	Serial / IP / IR / USB	Serial / IP / IR / USB	IP/ IR / USB	
Power		PoE+*4 / XLR	PoE+*4 / XLR	PoE+*4 / XLR	PoE+*4 / AC	PoE+*4 / AC	PoE+*4 / AC	PoE+*4 / AC	PoE+*4 / AC	PoE*4 / USB	
Current Consumption		5.0 A(XLR) 1.5 A(PoE+)	4.0 A (XLR) 1.2 A (PoE+)	4.0 A (XLR) 1.2 A (PoE+)	3.0 A (AC) 1.0 A (PoE+)	3.0 A (AC) 1.0 A (PoE+)	1.8 A (AC) 0.6 A (PoE+)	1.3 A (AC) 0.4 A (PoE+)	1.3 A (AC) 0.4 A (PoE+)	1.0 A (USB) 0.2 A (PoE)	
Weight*5		Approx. 4.6 kg (10.14 lbs)	Approx. 4.2 kg (9.24 lbs)	Approx. 4.1 kg (9.04 lb)	Approx. 2.3 kg (5.06 lb)	Approx. 2.0 kg (4.41 lbs)	Approx.1.8 kg (3.97 lbs)	Approx. 1.9 kg (4.19 lbs)	Approx. 1.9 kg (4.19 lbs)	Approx. 0.5 kg (1.1 lb)	
Dimensions (W x H x D)		213.0 mm x 277.0 mm x 240.0 mm	213 mm x 267 mm x 219 mm	213 mm x 267 mm x 219 mm	169.2 mm x 204.6 mm x 170.6 mm	170.0 mm x 211.0 mm x 171.0 mm	160.0 mm x 192.1 mm x 166.0 mm	165.1 mm x 176.2 mm x 176.1 mm	165.1 mm x 176.2 mm x 176.1 mm	123 mm x 131 mm x 139 mm	
Mount Position		Invertible: Ceiling or Desktop*6	Invertible: Ceiling or Desktop*6	Invertible: Ceiling or Desktop*6	Invertible: Ceiling or Desktop*6	Invertible: Ceiling or Desktop*6	Invertible: Ceiling or Desktop*6	Invertible: Ceiling or Desktop*6	Invertible: Ceiling or Desktop*6	Invertible: Ceiling or Desktop*6	
PTZ											
Pan Range		± 175°	± 175°	±175°	±175°	±175°	±175°	± 170°	± 170°	±110° (manual)	
Tilt Range*7		-30° to 210°	-30° to 210°	-30° to 210°	-30° to 210°	-30° to 90°	-30° to 90°	-30° to 90°	-30° to 90°	±25° (manual)	
Pan / Tilt Speed		Maximum speed during manual: 0.08°/s to 180°/s 3 speed mode installed*8	Maximum speed during manual: 0.08°/s to 180°/s 3 speed mode installed*8	Maximum speed during manual: 0.08°/s to 180°/s 3 speed mode installed*8	Maximum speed during manual: 0.08°/s to 180°/s Maximum speed during preset: 300°/s	Maximum speed during manual: 0.08°/s to 180°/s Maximum speed during preset: 300°/s	Maximum speed during manual: 0.08°/s to 180°/s Maximum speed during preset: 300°/s	Maximum speed during manual: 100°/s Maximum speed during preset: 200°/s*9	Maximum speed during manual: 100°/s Maximum speed during preset: 200°/s*9	—	
Operation Noise		NC35 or less (Nomal use) NC25 or less (P/T standstill)	NC35 or less	NC35 or less	NC25 or less	NC25 or less	NC25 or less	NC40 or less (60°/s or less) NC55 or less (100°/s or higher)	NC40 or less (60°/s or less) NC55 or less (100°/s or higher)	—	
New Direct Drive System		—	—	—	✓	✓	✓	—	—	—	
New PTZ Mechanism		✓ (Built-in optical encoder)	—	—	—	—	—	—	—	—	
Video Output											
12G-SDI		✓	✓	—	✓	—	—	—	—	—	
3G-SDI		✓*10	✓*10	✓*10	✓*10	✓*10	✓*10 (AW-UE50W/K)	✓*10,11	✓*10,11	—	
HDMI		✓	✓	✓	✓	✓	✓	✓	✓	✓	
USB (UVC compatible)		—	—	—	—	—	USB2.0 Type-C	USB2.0 Type-C	USB2.0 Type-C	✓ USB2.0 Type-C	
USB (5G mobile Router with USB Tethering Support)		✓ USB3.0	—	—	—	—	—	—	—	—	
IP		SMPTE ST 2110	✓*12,13	—	—	—	—	—	—	—	
		SRT	✓	✓	✓	✓	✓	✓	—	—	—
		NDI**14	✓ (4K)	—	—	✓ (4K)	✓ (FHD)	—	—	—	—
		NDI* HX*15	✓ (NDI* HX version 2, 4K)	✓ (NDI* HX version 2, FHD) (A license must be purchased for use.)	✓ (NDI* HX version 2, FHD) (A license must be purchased for use.)	✓ (NDI* HX version 2, FHD)	✓ (NDI* HX version 2, FHD)	✓ (NDI* HX version 2, FHD) (A license must be purchased for use.)	—	—	—
		RTMP/RTMPS	✓	✓	✓	✓	✓	✓	✓	✓	✓
RTSP/RTP etc.		✓	✓	✓	✓	✓	✓	✓	✓	✓	
Optical Fiber		✓*16	✓*16	—	—	—	—	—	—	—	
Control											
Browser (PC/Mac/Mobile) via IP		✓	✓	✓	✓	✓	✓	✓	✓	✓	
USB		—	—	—	—	—	✓	✓	✓	✓	
Controller / Switcher Supported*17		AW-RP150*18 / AW-RP60*18	AW-RP150 / AW-RP60 AV-UHS500 / AV-HLC100*19	AW-RP150 / AW-RP60 AV-UHS500 / AV-HLC100*19	AW-RP150 / AW-RP60 AV-UHS500 / AV-HLC100*19	AW-RP150 / AW-RP60 AV-UHS500	AW-RP150 / AW-RP60 AV-UHS500	AW-RP150 / AW-RP60 AV-UHS500	AW-RP150 / AW-RP60 AV-UHS500	AW-RP150 / AW-RP60*20	
IR Remote Control		AW-RM50G*19 / AW-RM50AG	AW-RM50G*19 / AW-RM50AG	AW-RM50G*19 / AW-RM50AG	AW-RM50G*19 / AW-RM50AG	AW-RM50G*19 / AW-RM50AG	AW-RM50G*19 / AW-RM50AG	AW-RM50G*19 / AW-RM50AG	AW-RM50G*19 / AW-RM50AG	AW-RM50G*19 / AW-RM50AG	
Remote Operation Panel (ROP/RCP)*21		AK-HRP1010GJ / AK-HRP1015GJ AK-HRP250GJ*22	AK-HRP1010GJ / AK-HRP1000GJ*19 AK-HRP1015GJ / AK-HRP1005*19 / AK-HRP250GJ	AK-HRP1010GJ / AK-HRP1000GJ*19 AK-HRP1015GJ / AK-HRP1005*19 / AK-HRP250GJ	AK-HRP1010GJ / AK-HRP1000GJ*19 AK-HRP1015GJ / AK-HRP1005*19 / AK-HRP250GJ	AK-HRP1010GJ / AK-HRP1000GJ*19 AK-HRP1015GJ / AK-HRP1005*19 / AK-HRP250GJ	AK-HRP1010GJ / AK-HRP1000GJ*19 AK-HRP1015GJ / AK-HRP1005*19 / AK-HRP250GJ	—	—	AK-HRP1010	
Software		Fees apply	SMPTE ST 2110 Activation Software Key AW-SFU60	✓	—	—	—	—	—	—	
			Auto Tracking Software Key AW-SF100/AW-SF200	✓*22	✓	✓	✓	✓	—	—	✓*23
			Visual Preset Software Key AW-SF300	✓	✓	✓	✓	✓	✓	✓	✓
			PTZ Control Center	✓	✓	✓	✓	✓	✓	✓	✓
		Free	PTZ Virtual USB Driver	✓	✓	✓	✓	✓	✓	✓	✓
Easy!P Setup Tool Plus		✓	✓	✓	✓	✓	✓	✓	✓	✓	
Features											
IP Streaming		✓	✓	✓	✓	✓	✓	✓	✓	✓	
Image Stabilization		Optical (O.I.S.), Electronic (E.I.S.)*24	Optical	Optical	Optical (O.I.S.), Electronic (E.I.S.)*24	Optical	Optical	—	—	—	
Night Mode (for IR)		✓	✓	✓	✓	✓	—	—	—	—	
Dynamic Range Stretch (DRS)		✓	✓	✓	✓	✓	✓	✓	✓	✓	
Audio Input / Embedding		✓ (XLR x 2)	✓	✓	✓	✓	✓	✓	✓	—	
Internal Mic		—	—	—	—	—	—	—	—	✓ (Audio On/Off: Available)	
Color Temperature Adjustment		✓	✓	✓	✓	✓	✓	—	—	—	
Presets		Up to 100	Up to 100	Up to 100	Up to 100	Up to 100	Up to 100	Up to 100	Up to 100	Up to 100	
High Dynamic Range (HDR)		✓ (support BT.2020)	✓ (support BT.2020)	✓ (support BT.2020)	—	—	—	—	—	—	
V-Log		✓	✓	—	—	—	—	—	—	—	
Fanless Design		—	—	—	—	—	✓	✓	✓	✓	
Built-in ND Filters		Through, 1/4, 1/16, 1/64	Through, 1/4, 1/16, 1/64	Through, 1/4, 1/16, 1/64	Through, 1/4, 1/16, 1/64	Through, 1/4, 1/16, 1/64	—	—	—	—	
Optical Low-pass Filter		✓	—	—	—	—	—	—	—	—	
Genlock		✓	✓	✓	✓	✓	—	—	—	—	
Digital Noise Reduction (DNR)		✓ (Equipped with New Image Precessing Engine)	✓	✓	✓	✓	✓	✓	✓	✓	
High-Speed Pan / Tilt Mode*25		✓	✓	✓	✓	✓	✓	—	—	—	
HD Cropping		✓ (Cropping zoom is available.)	✓	—	✓ (Cropping zoom is available.)	—	—	—	—	—	
AR / VR Systems		FreeD*26	FreeD*26	—	FreeD*26	FreeD*26	—	—	—	—	
Privacy Mode		✓	—	—	✓	✓	✓	✓	✓	—	
Tally Lamp		✓	✓	✓	✓	✓	✓	✓	✓	✓	
Front & Rear Tally / Red, Green, Yellow		Front & Rear Tally / Red, Green, Yellow	Red, Green	Red, Green	Red, Green	Red, Green	Red, Green	Red	Red	Red	
USB: Video Conference mode*27		—	—	—	—	—	✓	✓	✓	✓	
Waveform Display		✓	—	—	—	—	—	—	—	—	
Horizontal Level Gauge		✓	—	—	—	—	—	—	—	—	
Built-in Auto Tracking		—	—	—	—	✓*22	✓*22	—	—	—	
MSRP											