



**4K PTZ Camera for an era of enhanced creativity and the pursuit of visual expression.**

## AW-UE160

The AW-UE160 4K PTZ camera features a newly developed 4K 1" MOS sensor that offers the highest sensitivity of Panasonic's entire PTZ lineup. Production teams shooting in a concert venue or a church can easily capture clear images even in the most challenging lighting conditions. Meanwhile, the UE160's new optical low pass filter reduces the effect of moiré for clearer picture quality when shooting against an LED wall, which is especially important for rental and staging or worship environments. Its high-speed frame rate will help sports broadcasters capture slow motion shots in HD for replays, while seamless integration with the robotic camera system brings live broadcast-style movements to the PTZ, resulting in a dynamic and highly engaging video production.

### Key Features

- Uncompromising shooting performance and operability
- Optical low-pass filter significantly reduces moiré
- Newly developed 4K Sensor offering superior sensitivity
- Significantly improved Autofocus with advanced technology
- SMPTE 2110 Support with purchase of additional software key
- Realize next-generation video production with various shooting methods and functions.
- Ease of use and versatility reduces stress of shooting on-site.





## AW-UE160

<https://eu.connect.panasonic.com/sk/en/products/broadcast-proav/aw-ue160>

<b>Output Format (UHD/FHD SDI)</b>	4K2160/59.94p, 2160/50p, 2160/29.97p(Native), 2160/25p(Native), 2160/24p(Native), 2160/23.98p(Native) *2160/60p will be supported in version upgrade. HD1080/119.88p*, 1080/100p*, 1080/60p, 1080/59.94p, 1080/50p, 1080/29.97p(Native), 1080/25p(Native), 1080/24p(Native), 1080/23.98p(Native), 1080/59.94i, 1080/50i, 720/59.94p, 720/50p*1080/119.88p and 1080/100p use two 3G/SDI OUTPUT1/2 channels.*No output from 12G/SDI.
<b>Output Format (HDMI)</b>	4K 2160/59.94p, 2160/50p, 2160/29.97p(Native), 2160/25p(Native), 2160/24p(Native), 2160/23.98p(Native) *2160/60p will be supported in version upgrade.  HD 1080/119.88p, 1080/100p, 1080/60p, 1080/59.94p, 1080/50p, 1080/29.97p(Native), 1080/25p(Native), 1080/24p(Native), 1080/23.98p(Native), 720/59.94p, 720/50p
<b>Output Format (Fiber(Only Video))</b>	4K 2160/59.94p, 2160/50p, 2160/29.97p(Native), 2160/25p(Native), 2160/24p(Native), 2160/23.98p(Native) *2160/60p will be supported in version upgrade.  HD 1080/60p, 1080/59.94p, 1080/50p, 1080/29.97p(Native), 1080/25p(Native), 1080/24p(Native), 1080/23.98p(Native), 1080/59.94i, 1080/50i, 720/59.94p, 720/50p
<b>Supported Protocol</b>	<ul style="list-style-type: none"> <li>• Network Protocol: ICMP, ARP, GARP, MLD</li> <li>• Transmission Protocol: TCP/IP, UDP/IP</li> <li>• Application Protocol: <ul style="list-style-type: none"> <li>IPv4 : HTTP, HTTPS, DNS, NTP, DHCPv6, MDNS, SNMP, 802.1X</li> <li>IPv6 : HTTP, HTTPS, DNS, NTP, DHCPv4, MDNS, SNMP, 802.1X</li> </ul> </li> <li>• Video Streaming Protocol: <ul style="list-style-type: none"> <li>RTP/RTCP over RTSP, RTMP, RTMPS, SRT, MPEG2-TS over UDP, NDI HX version 2, High bandwidth NDI</li> <li>• External Device Cooperation Protocol: FreeD, TSL5.0, SNMP</li> </ul> </li> </ul>
<b>Current Consumption</b>	5.0 A (XLR IN connector), 1.5A (PoE++ power supply)
<b>Power Requirements</b>	12VDC±10%(10.8V to 13.2V)
<b>Ambient Operating Temperature</b>	0 °C to +40 °C (32 °F to +104 °F)
<b>PoE++</b>	IEEE802.3bt standard :DC 42 V to 57V (Camera Input)*Limited in function when PoE used.(Software authentication (LLDP) is supported))
<b>Storage Temperature</b>	-20 °C to +50 °C (-4 °F to +122 °F)
<b>Ambient Operating Humidity</b>	20 % to 90 % (no condensation)
<b>Mass</b>	Approx. 4.6kg (10.14lbs)(excluding mount bracket)
<b>Finish</b>	AW-UE160W : Pearl White AW-UE160K : Black
<b>Controller Supported</b>	AW-RP150 , AW-RP60 , AK-HRP1010 , AK-HRP1015 , AK-HRP250 *IP only. Other ROP will be compatible in the future.  **Digext Certification operation of AW-RP150 and AW-RP60 are not guaranteed.
<b>Lens</b>	Motorized Optical 20x Zoom F2.8 to F4.5(f=8.8 mm to 176.0 mm, 35mm equivalent:24.5 mm to 490.0 mm)
<b>Imaging Sensors</b>	1-type (1")* 4K MOSx1 *Effective size Effective Pixels: Approx. 9,620,000 pixels
<b>Camera Unit</b>	-
<b>Optical Filter</b>	Through, 1/4, 1/16, 1/64 *equipped with Low pass filter(Through is used as "night mode")

<b>Focus</b>	Switching between auto and manual
<b>Conversion</b>	Not Supported
<b>Lens</b>	
<b>Angle of View</b>	Horizontal: 75.1°(wide) to 4.0°(tele)
<b>Range</b>	Vertical: 46.7°(wide) to 2.3°(tele)
	Diagonal: 82.8°(wide) to 4.6°(tele)
<b>Focus Distance</b>	Entire zooming range: 1000 mm, Wide end: 100 mm
<b>Standard</b>	F1 1/2,000lux (Normal), F1 4/2,000lux (Low Light)
<b>Sensitivity</b>	
<b>Color</b>	1MOS
<b>Separation</b>	
<b>Optical Systems</b>	
<b>Horizontal</b>	1,600 TV Typ (center area, UHD Mode, Wide)
<b>Resolution</b>	
<b>Gain Selection</b>	Auto, -6dB to 12dB *1 dB step increments can be set.
<b>Frame Mix</b>	Auto, 0dB, 6dB, 12dB, 18dB, 24dB*If format is set in 1080/119.88p, 1080/100p, 2160/29.97p, 2160/23.98p, 2160/24p, 2160/25p, 1080/29.97p, 1080/25p, it cannot be set.
<b>Electronic</b>	60p:
<b>Shutter Speed</b>	1/60, 1/100, 1/120, 1/125, 1/250, 1/500, 1/1,000, 1/1,500, 1/2,000
	59.94p/59.94i:
	1/60, 1/100, 1/120, 1/125, 1/250, 1/500, 1/1,000, 1/1,500, 1/2,000
	50p/50i:
	1/60, 1/100, 1/125, 1/250, 1/500, 1/1,000, 1/1,500, 1/2,000
	29.97p:
	1/48, 1/50, 1/60, 1/96, 1/100, 1/120, 1/125, 1/250, 1/500, 1/1,000, 1/1,500, 1/2,000
	25p:
	1/48, 1/50, 1/60, 1/96, 1/100, 1/125, 1/250, 1/500, 1/1,000, 1/1,500, 1/2,000
	23.98p:
	1/48, 1/50, 1/60, 1/96, 1/100, 1/120, 1/125, 1/250, 1/500, 1/1,000, 1/1,500, 1/2,000
	24p:
	1/48, 1/50, 1/60, 1/96, 1/100, 1/120, 1/125, 1/250, 1/500, 1/1,000, 1/1,500, 1/2,000
	59.94p- 120fps:
	1/125, 1/250, 1/500, 1/1,000, 1/1,500, 1/2,000
	50p- 100fps:
	1/125, 1/250, 1/500, 1/1,000, 1/1,500, 1/2,000
<b>Synchro Scan</b>	60p: 60.00Hz to 7,200Hz
	59.94p/59.94i: 60.00Hz to 7,200Hz
	50p/50i: 50.00Hz to 7,200Hz
	29.97p: 30.00Hz to 7,200Hz
	25p: 25.00Hz to 7,200Hz
	23.98p: 24.00Hz to 7,200Hz
	59.94p- 120fps: 120Hz to 7,200Hz
	50p- 100fps: 100Hz to 7,200Hz
<b>White Balance</b>	ATW, 3200K, 5600K
	AWB-A, AWB-B
	VAR (selectable between 2000 K and 15000 K by designating a value)
	*ATW Speed 3-stage variables.
<b>Gamma</b>	HD / NORMAL / CINEMA1 / CINEMA2 *HLG is set in other menuMASTER GAMMA (0.15~0.75)R GAMMA (-75~+75)B GAMMA (-75~+75)
	R BLACK GAMMA (-20~+20)B BLACK GAMMA (-20~+20)
<b>Scene File</b>	Scene 1 to 8
<b>Chroma</b>	Amount
<b>Variability</b>	OFF, -100% to 40%
<b>HDMI</b>	HDMI 2.0 connector
	4:2:2/10bit
	*HDCP is not supported.
	*Viera Link is not supported.

<b>Synchronization</b>	Internal/External synchronization (BBS/Tri-level sync)
<b>System</b>	
<b>Input</b>	DC 12 V IN, G/L IN(BNC)
<b>G/L In</b>	BBS (Black Burst Sync), tri-level sync supported)
<b>Output</b>	-
<b>AUDIO INPUT</b>	XLR(2ch) or MIC/LINE Input compatibles /HDMI /IP)AAC compatibility (compatible with IP only)3-pin XLR female connectors, 2ch, balanced input · During MIC input Input level: -50dBu or -60dBu/-40dBu(0 dB=1 V/Pa, 1 kHz) Phantom power compatible, Supply voltage:47 V±2 V Input impedance: Approx. 10kΩ · During LINE input Input level : 0 dBu ( or +4dBu/-20dBu) Input impedance: Approx. 10kΩ · Input volume variable range: -40 dB ~ 0dB ~ +20 dB (1 dBstep) · Embedded audio output level: -12dBFS/-18dBFS/-20dBFS · Sampling frequency: 48 kHz · Quantization bit rate : 24 bit(SDI, HDMI), 16bit(IP)
<b>1/2</b>	
<b>12G SDI OUT</b>	SMPTTE2082-1, SMPTE424M /SMPTE292M / 75 Ω(BNC×1) *Level-A/Level-B supported
<b>3G SDI OUT1</b>	SMPTTE424M /SMPTE292M / 75 Ω(BNC×1) *Level-A/Level-B supported
<b>3G SDI OUT2/PM</b>	SMPTTE424M /SMPTE292M / 75 Ω(BNC×1) *Level-A/Level-B supported
<b>SFP+</b>	SFP+ standard (Single Fiber) *This unit does not support input by optical signals
<b>LAN</b>	LAN connector for IP control (RJ-45)
<b>USB</b>	USB3.0 HOST(5G mobile router with USB tethering support) *Limited power supply to USB Wifi dongle.
<b>RS-422</b>	CONTROL IN RS422A (RJ-45)
<b>Input/Output</b>	-
<b>IP Connecting</b>	· If you have PoE++ ethernet hub
<b>Cable</b>	LAN cable *1( category 5e or above, straight cable) max. 100 m (328 ft) · If you don't have PoE++ ethernet hub LAN cable *1( category 5e or above, straight cable) max. 100 m (328 ft) *1 STP(Shielded Twisted Pair) is recommended *2 Category 6 or above is used for 4K video transmission.
<b>Pan-tilt Head Control</b>	-
<b>AW Protocol Connecting</b>	LAN cable*( category 5e or above, straight cable) max. 1000 m (3280 ft) *STP (Shielded Twisted Pair) is recommended
<b>Cable</b>	
<b>Pan/Tilt Operation</b>	Speed range: 0.08 °/s ~180°/s( Normal mode)
<b>Speed</b>	3 speed modes installed: Normal: ~60°/s, Fast1: ~90°/s, Fast2: ~180°/s
<b>Quietness</b>	NC35 or less *When standing still, NC25 or less
<b>Tilting Range</b>	-30°~ 210° *Depending on the pan or tilt position, the camera may be reflected in the image.
<b>Panning Range</b>	±175°
<b>Pan-Tilt Head Unit</b>	-
<b>Installation Method</b>	Stand-alone (Desktop) or suspended (Hanging) *To ensure safety, the unit must be secured using the mount bracket supplied.
<b>Windows</b>	Windows®10 Microsoft Edge Google Chrome
<b>Supported operating systems and web browsers</b>	-
<b>Image Resolution</b>	3840x2160, 1920x1080, 1280x720, 640x360
<b>Mac</b>	macOS 10.13 / Safari 13 macOS 10.14 / Safari 13 macOS 10.15 / Safari 13 macOS 10.15 / Google Chrome
<b>Android</b>	Android OS Google Chrome
<b>IP Streaming</b>	-
<b>Image Streaming Mode</b>	JPEG(MJPEG), H.264, H.265, NDI HX Ver2, High Bandwidth NDI
<b>Image Transmission setting (JPEG)</b>	· Frame rate : Max. 30fps *No bit rate specified *JPEG and H.264, JPEG and H.265 simultaneous operation depends on bit rate · Image quality: Fine/Normal

<b>Image Transmission Setting (H.264)</b>	<ul style="list-style-type: none"> <li>Transmission Type : Unicast port (AUTO), Unicast port (MANUAL), Multicast port</li> <li>Transmission mode :CBR, VBR</li> <li>Frame Rate <ul style="list-style-type: none"> <li>[60Hz] <ul style="list-style-type: none"> <li>5fps/15fps/30fps/60fps (UHD: 30fps,60fps)</li> </ul> </li> <li>[50Hz] <ul style="list-style-type: none"> <li>5fps/12.5fps/25fps/50fps (UHD: 25fps,50fps)</li> </ul> </li> </ul> </li> <li>Max to Min Bit Rate: <ul style="list-style-type: none"> <li>2048kbps/4096kbps/8192kbps/10240kbps/12288kbps/14336kbps/20480kbps/24576kbps/51200kbps/76800kbps</li> </ul> </li> </ul>
<b>iPhone / iPad / iPod touch</b>	iOS, Safari, iPadOS
<b>Image Transmission Setting (H.265)</b>	<ul style="list-style-type: none"> <li>Transmission Type: Unicast port (AUTO), Unicast port (MANUAL), Multicast port</li> <li>Transmission Mode: CBR,VBR</li> <li>Frame Rate <ul style="list-style-type: none"> <li>[60Hz] <ul style="list-style-type: none"> <li>30fps / 60fps</li> </ul> </li> <li>[50Hz] <ul style="list-style-type: none"> <li>25fps / 25fps</li> </ul> </li> </ul> </li> <li>Max to Min Bit Rate: <ul style="list-style-type: none"> <li>2048kbps/4096kbps/8192kbps/10240kbps/12288kbps/14336kbps/20480kbps/24576kbps/51200kbps/76800kbps</li> </ul> </li> </ul>
<b>Audio Compression Type</b>	AAC-LC, 48kHz/16bit/2ch
<b>Output Format</b>	<ul style="list-style-type: none"> <li>Video Format (Full x1, MONI x1.Crop x1, all of these same format) 1080/60p, 1080/59.94p, 50p, 1080/59.94i, 50i, 1080/29.97p(Native), 25p(Native), 1080/24p, 1080/23.98p(Native), 720/59.94p, 50p</li> <li>Audio Specification INPUT1/INPUT2 PCM/48kHz/24bit/1 ch x2</li> </ul>
<b>NDI (High Bandwidth NDI,NDI HX Ver.2)</b>	-
<b>Output Format (High bandwidth NDI)</b>	4K 2160/59.94p, 2160/50p, 2160/29.97p, 2160/25p, 2160/24p, 2160/23.98p HD 1080/60p, 1080/59.94p, 1080/50p, 1080/29.97p, 1080/25p, 1080/24p, 1080/23.98p, 720/59.94p, 720/50p
<b>Image Resolution (NDI HX Ver.2)</b>	3840x2160, 1920x1080, 1280x720
<b>Image Streaming Setting</b>	<ul style="list-style-type: none"> <li>High Bandwidth NDI</li> <li>Transmission Type: TCP /UDP, Unicast/Multicast</li> <li>Bit Rate: Max. 250Mbps</li> <li>NDI HX version.2: <ul style="list-style-type: none"> <li>Transmission Type: TCP/UDP, Unicast/Multicast</li> <li>Frame Rate: <ul style="list-style-type: none"> <li>[60Hz] 5fps/15fps/30fps/60fps</li> <li>[50Hz] 5fps/12.5fps/25fps/50fps</li> </ul> </li> <li>Max Bit Rate: <ul style="list-style-type: none"> <li>512kbps/768kbps/1024kbps/1536kbps/2048kbps/3072kbps/4096kbps</li> <li>/6144kbps/8192kbps/10240kbps/12288kbps/14336kbps/16384kbps/20480kbps/24576kbps</li> </ul> </li> </ul> </li> </ul>
<b>Audio Compression Type 2</b>	High Bandwidth NDI: AAC, 48kHz, 2ch NDI HX Ver.2: AAC-LC, 48kHz/16bit/2ch
<b>Number of Output (TX)</b>	Video: 3 line (Full x1, MONI x1.Crop x1) Audio: 2 line Auxiliary data: No output
<b>Number of Input (RX)</b>	Video: 1 line(RETURN) *Out from 3G SDI OUT2(Video is changed in the OSD menu) Audio: No input Auxiliary data: No input
<b>Optional Accessories</b>	-
<b>Cropping</b>	Select from 3 types of images from 3G/SDI OUTPUT2, Crop Zoom available
<b>Image Stabilization</b>	Hybrid method of OIS 2-axis + Roll direction correction MENU switching: <ul style="list-style-type: none"> <li>select between OFF / O.I.S.(STABLE) / O.I.S.(PAN/TILT) / HYBRID(STABLE) / HYBRID(PAN/TILT)</li> </ul>
<b>Power LED</b>	ON/OFF control

<b>Tripod Screw Penetration Measures</b>	Possible
<b>Privacy Mode</b>	The lens surface faces downward when standing by (ON/OFF)
<b>Input Format</b>	Video Format (Full x1, MONI x1.Crop x1, all of these same format)1080/60p, 1080/59.94i, 50i, 1080/29.97p(Native), 25p(Native) 1080/24p, 1080/23.98p(Native), 720/59.94p, 50p
<b>New Feature</b>	-
<b>HDR/SDR</b>	HLG/BT.2020 compatible, SDR/BT.709 compatible
<b>F Number</b>	Displayed on the AW-RP150 and AW-RP60 sides
<b>Display</b>	
<b>NDI</b>	High Bandwidth NDI, NDI HX Ver.2 included as standard
<b>IP menu display</b>	supported *Non-synchronous with SDI-OUT
<b>VR (FreeD) (IP/RS422)</b>	supported
<b>Yellow Tally</b>	supported
<b>PTP</b>	supported
<b>5G/WiFi 6</b>	Compatible with recommended products only
<b>WFM display</b>	Output with video superimposed from 3G/SDI OUTPUT2
<b>Return Video Output</b>	Output return video input from ST 2110 via SDI_OUT2
<b>Horizontal Level Gauge</b>	ON/OFF control in OSD MENU or Web GUI
<b>Wireless Remote Controller</b>	AW-RM50AG ( Size "AA" dry battery x 2, obtained separately )
<b>Dimensions (W x H x D)</b>	213.0 mm x 277.0 mm x 240.0 mm (8.39inches x 10.91 inches x 9.45inches) [excluding protrusions, cable cover, ceiling mount bracket]
<b>Supported Format</b>	ST 2110: 10/20/21/30 PTP: ST 2059-2 NMOS: IS-04/IS-05
<b>Output Format (ST 2110)</b>	HD 1080/60p, 1080/59.94p, 1080/50p, 1080/29.97p(Native), 1080/25p(Native), 1080/24p(Native), 1080/23.98p(Native), 720/59.94p, 720/50p
<b>SFP+(ST 2110)</b>	Compatible protocol: -ST 2110-10/-20/-21/-30 -PTP ST 2059-2 -NMOS IS-04/IS-05 Output number: Video x3 (Full, Crop, Monitor), Audio x2 Input number: Video x1 (RETURN) Video format: FHD *Same as system format
<b>ST 2110</b>	
<b>Zoom</b>	• Optical Zoom: 20x• i.Zoom: UHD 24x, FHD 32x• Digital Extender Zoom: 1.4x, x