Panasonic CONNECT

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.

HDMI HIGH DEFINITION MULTIMEDIA INTERFACE
4K PROFESSIONAL HDR
SRT SECURE RELIABLE TRANSPORT

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AW-UE160

https://ap.connect.panasonic.com/my/en/aw-ue160

General -> Power Requirements	12 V DC ± 10% (10.8 V to 13.2 V)
General -> PoE	PoE++ IEEE802.3bt standard: DC 42 V to 57 V (Camera Input) (Software authentication (LLDP) is supported).
General -> Current Consumption	5.0A (XLR IN connector), 1.5A (PoE++ power supply)
General -> Ambient Operating Temperature	0 °C to 40 °C (32 °F to 104 °F)
General -> Ambient Operating Humidity	20 % to 90 % (no condensation)
General -> Storage Temperature	–20 °C to 50 °C (–4 °F to 122 °F)
General -> Weight	Approx. 4.6 kg (10.14 lbs) (excluding mount bracket)
General -> Dimensions	W 213 mm x H 277 mm x D 240 mm (8.39 inches x 10.91 inches x 9.45 inches) (excluding protrusions, ceiling mount bracket)
General -> Finish	AW-UE160W: Pearl white AW-UE160K: Black
General -> Controller Supported *2 *3	See the "Compatibility Chart for Operation Devices and Application Software" page
Camera Unit -> Imaging Sensor	1-type 4K MOSx1
Camera Unit -> Effective Pixels	Approx. 9,620,000 pixels
Camera Unit -> Zoom	・Optical zoom: 20x ・i.Zoom: UHD 24x, FHD 32x ・D.Extender zoom: 1.4x, 2x
Camera Unit -> Lens	Motorized Optical 20x zoom, F2.8 to F4.5 [f=8.8 mm (11/32 inches) to 176.0 mm (6-15/16 inches), 35 mm (1-3/8 inches) equivalent: 24.5 mm (31/32 inches) to 490.0 mm (19-9/32 inches)]
Camera Unit -> Conversion Lens	Not supported
Camera Unit -> Angle of View Range	Horizontal angle of view: 75.1° (wide) to 4.0° (tele) Vertical angle of view: 46.7° (wide) to 2.3° (tele) Diagonal angle of view: 82.8° (wide) to 4.6° (tele)
Camera Unit -> Optical Filter -> ND Filter	Through, 1/4, 1/16, 1/64 *4, (Through is used as “Night mode”)
Camera Unit -> Focus	Switching between auto and manual
Camera Unit -> Focus Distance	Entire zooming range: 1000 mm (3.3 ft) Wide end: 100 mm (0.33 ft)
Camera Unit -> Color Separation Optical System	1MOS
Camera Unit -> Standard Sensitivity	F14 / 2,000lx (Low Light), F11 / 2,000lx (Normal) (59.94Hz) F15 / 2,000lx (Low Light), F12 / 2,000lx (Normal) (50Hz)
Camera Unit -> Horizontal Resolution -> 4K	1,600 TV lines Typ (Center area)
Camera Unit -> Gain Selection	Auto, -6 dB to 12 dB *5
Camera Unit -> Frame Mix	Auto, 0 dB, 6 dB, 12 dB, 18 dB, 24 dB *6
Camera Unit -> Electronic Shutter Speed -> 60p	1/60, 1/100, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000
Camera Unit -> Electronic Shutter Speed -> 59.94p/59.94i	1/60, 1/100, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000
Camera Unit -> Electronic Shutter Speed -> 50p/50i	1/60, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000
Camera Unit -> Electronic Shutter Speed -> 29.97p	1/48, 1/50, 1/60, 1/96, 1/100, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000
Camera Unit -> Electronic Shutter Speed -> 25p	1/48, 1/50, 1/60, 1/96, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000
Camera Unit -> Electronic Shutter Speed -> 23.98p/24p	1/48, 1/50, 1/60, 1/96, 1/100, 1/200, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000
Camera Unit -> Electronic Shutter Speed -> 59.94p/120fps	1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000
Camera Unit -> Electronic Shutter Speed -> 50p/100fps	1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000
Camera Unit -> Synchro Scan -> 60p	60.00 Hz to 7200 Hz
Camera Unit -> Synchro Scan -> 59.94p/59.94i	60.00 Hz to 7200 Hz
Camera Unit -> Synchro Scan -> 50p/50i	50.00 Hz to 7200 Hz
Camera Unit -> Synchro Scan -> 29.97p	30.00 Hz to 7200 Hz
Camera Unit -> Synchro Scan -> 25p	25.00 Hz to 7200 Hz
Camera Unit -> Synchro Scan -> 23.98p/24p	24.00 Hz to 7200 Hz

Camera Unit -> Synchro Scan -> 59.94p/120fps	120.00 Hz to 7200 Hz
Camera Unit -> Synchro Scan -> 50p/100fps	100.00 Hz to 7200 Hz
Camera Unit -> Gamma	HD / NORMAL / CINEMA1 / CINEMA2 *7 MASTER GAMMA (0.15 ~ 0.75) R GAMMA (-75 ~ +75) B GAMMA (-75 ~ +75) R BLACK GAMMA (-20 ~ +20) B BLACK GAMMA (-20 ~ +20)
Camera Unit -> White Balance	ATW *8: 3200K, 5600K AWB : AWB-A / AWB-B VAR (selectable between 2000K and 15000K by designating a value)
Camera Unit -> Chroma Amount Variability	OFF, –100 % to 40 %
Camera Unit -> Scene File	Scene1 to 8
Camera Unit -> Color Bar *9	SMPTE, FULL ARIB (FHD): Output of base band type only ARIB (UHD): Output of base band type UHD only ARIB (2020/HLG): Output of base band type UHD only •IP display color bars do not conform with SMPTE
Camera Unit -> Output Format (SDI) -> 4K	2160/60p, 2160/59.94p, 2160/50p, 2160/29.97p (Native), 2160/25p (Native), 2160/24p (Native), 2160/23.98p (Native)
Camera Unit -> Output Format (SDI) -> HD	1080/119.88p *10 *11, 1080/100p *10 *11, 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
Camera Unit -> Output Format (HDMI) -> 4K	2160/60p, 2160/59.94p, 2160/50p, 2160/29.97p (Native), 2160/25p (Native), 2160/24p (Native), 2160/23.98p (Native)
Camera Unit -> Output Format (HDMI) -> HD	1080/119.88p, 1080/100p, 1080/60p, 1080/59.94p, 1080/50p, 1080/29.97p (Native), 1080/25p (Native), 1080/25PsF, 1080/24p (Native), 1080/23.98p (Native), 1080/59.94i, 1080/50i, 720/59.94p, 720/50p
Camera Unit -> Output Format(Fiber (video only)) -> 4K	2160/59.94p, 2160/50p, 2160/29.97p (Native), 2160/25p (Native), 2160/24p (Native), 2160/23.98p (Native)
Camera Unit -> Output Format(Fiber (video only)) -> 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
Camera Unit -> Output Format(ST 2110) *12	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
Synchronization System	Internal/External synchronization (BBS/Tri-level sync)
Input Connector -> DC IN	DC 12 V IN
Input Connector -> G/L IN	BBS (Black Burst Sync), tri-level sync supported
Input Connector -> AUDIO INPUT -> XLR	XLR (2ch) or MIC/LINE Input compatibles (SDI/HDMI/IP) AAC compatibility (compatible with IP only) XLR 3-pin female balanced input: 2ch • During MIC input Input level: –50 dBu or -60 dBu/-40 dBu (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 +4 dBu/-20 dBu) Input impedance: Approx. 10kΩ • Input volume variable range: -40 dB to 0 dB to +20 dB (1 dB step) • Embedded audio output level: -12 dBFS/-18 dBFS/-20 dBFS • Sampling frequency: 48 kHz • Quantization bit rate: 24 bit (SDI/HDMI), 16bit (IP)
Output Connector -> HDMI	HDMI 2.0 standard 4:2:2/10bit *13 *14
Output Connector -> 12G-SDI OUT	SMPTE2082_1, SMPTE424M/SMPTE292M/ 75 Ω (BNC x 1) *15
Output Connector -> 3G-SDI OUT1	SMPTE424M/SMPTE292M/ 75 Ω (BNC x 1) *15
Output Connector -> 3G-SDI OUT2/PM	SMPTE424M/SMPTE292M/ 75 Ω (BNC x 1) *15
Output Connector -> SFP+	SFP+ compliant (Single Fiber) *16, MSA standard compliant product
Output Connector -> USB	USB3.0 HOST 5G mobile router (with USB tethering support *17
Input/Output Connector -> LAN	LAN connector for IP control (RJ-45) 100BASE-TX/1000BASE-T
Input/Output Connector -> RS-422	CONTROL IN RS-422A (RJ-45)
Input/Output Connector -> SFP+（ST 2110） *12	Compatible protocol: • ST 2120-10/-20/-21/-22/-30 • PTP ST 2059-1/2 • NMOS IS-04/IS-05 Number of outputs: [Uncompressed] Video x3 (Main line, Crop, Monitor), Audio x2 [JPEG XS] Video x1 (Main line, Crop), Audio x2 Number of inputs: Video x1 (RETURN) Video format: FHD, UHD *18 Please refer to the operating instruction manual.
Pan-tilt Head Unit -> IP connecting cable	• With PoE++ ethernet hub LAN cable *19(category 5e or above, straight cable) up to 100 m • Without PoE++ ethernet hub LAN cable *19(category 5e or above, straight cable) up to 100 m *20
Pan-tilt Head Unit -> AW protocol connecting cable	LAN cable *19(category 5e or above, straight cable) up to 1000 m
Pan-tilt Head Unit -> Installation Method	Stand-alone (Desktop) or suspended (Hanging) *21
Pan-tilt Head Unit -> Pan/tilt Operation Speed	0.08 °/s to 180°/s (Normal mode) *22 Maximum speed: Normal mode: 60°/s, Fast1 mode: 90°/s, Fast2 mode: 180°/s
Pan-tilt Head Unit -> Panning Range	±175°
Pan-tilt Head Unit -> Tilting range	–30° to 210° *22

Pan-tilt Head Unit -> Quietness	NC35 or less *23
Supported Operating Systems and Web Browsers -> Windows	Windows®10 Microsoft Edge Google Chrome
Supported Operating Systems and Web Browsers -> Mac	macOS 10.13 / Safari 13 macOS 10.14 / Safari 13 macOS 10.15 / Safari 13 macOS 10.15 / Google Chrome
Supported Operating Systems and Web Browsers -> iPhone/iPad	iOS Safari iPadOS
Supported Operating Systems and Web Browsers -> Android *9	Android OS Google Chrome
IP Streaming -> Image Streaming Mode	JPEG (MJPEG), H.264, H.265, NDI® High Bandwidth, NDI® HX *24 *25
IP Streaming -> Image Resolution	3840x2160, 1920x1080, 1280x720, 640x360
IP Streaming -> Image Transmission Setting (JPEG)	Frame Rate: Maximum 30 fps *26 *27 Image quality (Fine / Normal)
IP Streaming -> Image Transmission Setting (H.264) -> Transmission Type	Unicast port (AUTO) Unicast port (MANUAL) Multicast port
IP Streaming -> Image Transmission Setting (H.264) -> Transmission mode	CBR, VBR
IP Streaming -> Image Transmission Setting (H.264) -> Frame Rate	[60Hz] 5fps / 15fps / 30fps / 60fps (UHD: 30fps, 60fps) [50Hz] 5fps / 12.5fps / 25fps / 50fps (UHD: 25fps, 50fps)
IP Streaming -> Image Transmission Setting (H.264) -> Max Bit Rate	2048kbps / 4096kbps / 8192kbps / 10240kbps / 12288kbps / 14336kbps / 20480kbps / 24576kbps / 51200kbps / 76800kbps
IP Streaming -> Image Transmission Setting (H.265) -> Transmission Type	Unicast port (AUTO) Unicast port (MANUAL) Multicast port
IP Streaming -> Image Transmission Setting (H.265) -> Transmission mode	CBR, VBR
IP Streaming -> Image Transmission Setting (H.265) -> Frame Rate	[60Hz] 30fps / 60fps [50Hz] 25fps / 50fps
IP Streaming -> Image Transmission Setting (H.265) -> Max Bit Rate	2048kbps / 4096kbps / 8192kbps / 10240kbps / 12288kbps / 14336kbps / 20480kbps / 24576kbps / 51200kbps / 76800kbps
IP Streaming -> Audio Compression Format	AAC-LC, 48 kHz / 16 bit / 2ch
IP Streaming -> Supported Protocol -> Network Protocol	ICMP, ARP, GARP, MLD
IP Streaming -> Supported Protocol -> Transmission Protocol	TCP/IP, UDP/IP
IP Streaming -> Supported Protocol -> IPv6	IPv4: HTTP, HTTPS, DNS, NTP, DHCPv6, MDNS, SNMP, 802.1X
IP Streaming -> Supported Protocol -> IPv4	IPv6: HTTP, HTTPS, DNS, NTP, DHCPv4, MDNS, SNMP, 802.1X
IP Streaming -> Supported Protocol -> Video Streaming Protocol	RTP / RTCP over RTSP, RTMP, RTMPS, SRT, MPEG2-TS over UDP, NDI® high bandwidth , NDI® HX
IP Streaming -> Supported Protocol -> External Device Cooperation Protocol	FreeD, TSL5.0, SNMP
NDI® Support -> NDI® Support	NDI®(High Bandwidth NDI®, NDI®|HX Ver.2) *24 *25
NDI® Support -> Output Format (NDI® High bandwidth) -> 4K	2160/59.94p, 2160/50p, 2160/29.97p, 2160/25p, 2160/24p, 2160/23.98p
NDI® Support -> Output Format (NDI® High bandwidth) -> HD	1080/60p, 1080/59.94p, 1080/50p, 1080/29.97p, 1080/25p, 1080/24p, 1080/23.98p, 720/59.94p, 720/50p
NDI® Support -> Image Resolution (NDI® HX)	1920x1080, 1280x720 *29
NDI® Support -> Image Streaming Setting (NDI® High bandwidth) -> Transmission Type	Transmission Type: TCP/UDP Unicast/Multicast
NDI® Support -> Image Streaming Setting (NDI® High bandwidth) -> Max Bit Rate	Max 250 Mbps
NDI® Support -> Image Streaming Setting (NDI® HX) -> Transmission Type	TCP/UDP Unicast/Multicast
NDI® Support -> Image Streaming Setting (NDI® HX) -> Flame rate	[60Hz] 5fps / 15fps / 30fps / 60fps [50Hz] 5fps / 12.5fps / 25fps / 50fps
NDI® Support -> Image Streaming Setting (NDI® HX) -> Max Bit Rate	512kbps / 768kbps / 1024kbps / 1536kbps / 2048kbps / 3072kbps /4096kbps / 6144kbps / 8192kbps / 10240kbps / 12288kbps / 14336kbps / 16384kbps / 20480kbps / 24576kbps
NDI® Support -> Audio Compression Type (NDI® High bandwidth)	AAC, 48 kHz, 2 ch
NDI® Support -> Audio Compression Type (NDI® HX)	AAC-LC, 48 kHz,16 bit, 2 ch
Other Function -> VR Support (IP/RS422)	Supported
ST 2110 -> Supported Format	ST 2110: 10/20/21/30 PTP: ST2059-2 NMOS: IS-04/IS-05
ST 2110 -> Number of Outputs (TX) -> Video	3 channels (Full x 1, MONI x 1, Crop x 1)
ST 2110 -> Number of Outputs (TX) -> Audio	2 channels

ST 2110 -> Number of Outputs (TX) -> Auxiliary data	No output
ST 2110 -> Number of Inputs (RX) -> Video	1 channel (RETURN) *30
ST 2110 -> Number of Inputs (RX) -> Audio	No input
ST 2110 -> Number of Inputs (RX) -> Auxiliary data	No input
ST 2110 -> Output Format -> Video format	Full x1, MONI x1, Crop x1, all the same format 1080/60p, 1080/59.94p, 1080/50p, 1080/59.94i, 1080/50i, 1080/29.97p (Native), 1080/25p (Native), 1080/24p, 1080/23.98p (Native), 720/59.94p, 720/50p
ST 2110 -> Output Format -> Audio specifications (MIC1/2)	PCM / 48kHz / 24bit / 1ch x2
ST 2110 -> Input Format	1080/60p, 1080/59.94p, 1080/50p, 1080/59.94i, 1080/50i, 1080/29.97p (Native), 1080/25p (Native),1080/24p, 1080/23.98p (Native), 720/59.94p, 720/50p
Optional Accessories -> Wireless Remote Controller	AW-RM50AG (Size "AA" dry battery x2, obtained separately)
Footnote Description	* NDI® is a registered trademark of Vizrt NDI AB in the United States and other countries. 1. Limited in function when PoE used. 2. IP only. 3. Connection with digest authentication is not guaranteed to work in a case where you are using a Panasonic Controller (AW-RP150, AW-RP60). Smooth operation may be diminished when connection with digest authentication. Use host authentication or the HTTPS function. 4. Equipped with Low pass filter. 5. Can be set in 1dB step increments. 6. If format is set in 2160/29.97p, 2160/23.98p, 2160/24p, 2160/25p, 1080/29.97p,1080/25p, it cannot be set. 7. HLG is set in other menu. 8. ATW Speed 3-stage variables 9. The color bar on the IP display is not compliant with SMPTE. 10. 1080/119.88p and 1080/100p use two 3G SDI OUT1/2 channels. 11. No output from 12G/SDI. 12. Requires activation with the separately sold Operational Software Key AW-SFU60. 13. HDCP is not supported. 14. Viera Link is not supported. 15. Compatible with Level-A/Level-B. 16. Optical signal input not supported. 17. Limited power supply to USB_Wifi dongle. 18. Follows the system format. 19. STP (Shielded Twisted Pair) is recommended. 20. Use Category 6 or higher for 4K video transmission. 21. For safety reasons, it must be secured with the included mounting hardware. 22. Depending on the PAN/TILT position, the main unit may be reflected in the video image. 23. NC25 or less when P/T is stationary. 24. NDI® is a new live video production workflow support protocol for IP use developed by NewTek, Inc. 25. NDI® is a registered trademark of NewTek, Inc. in the United States and other countries. 26. No bit rate specified. 27. JPEG and H.264, JPEG and H.265 simultaneous operation depends on bit rate. 28. NDI® has no image resolution specifications. 29. NDI®|HX has no output format specifications. 30. Output from 3G SDI OUT2 (Video is changed in the OSD menu)