

Statement of Work for Joint bases McGuire, Dix and Lakehurst
Tommy B's Community Center 2705 E. Arnold Ave
Visual and Sound System Lifecycle extension

24 July 2023

1.0 Purpose: This Statement of work is to detail the tasks and responsibilities of the Sound and Video contractor in relation to the contract with the 87TH Force Support Squadron for Lifecycle extension of the Current Audio Video system installed at Tommy B's Community Center (2705 E. Arnold Ave) at Joint Base McGuire-Dix-Lakehurst. Contractor shall provide all contractual services as stated.

2.0 Scope: Upgrades will consist of a new digital video matrix, allowing any source to be routed to any or all displays. With the exception of the Liberty room all speakers, speaker wiring, and amplifiers will remain and be re-commissioned and tuned. The automation system will have new touch panels as well as a mobile Ipad or like for staff control and functionality. Programming will have the ability for the end user to setup, volume, source routing, global presets to "preset" events, as well as room combining. Replacement wireless microphone systems will allow the presenters to have either a handheld microphone or lavalier. Wireless airplay devices allow PC presentation without connecting to an input plate. A PC located in the new equipment rack will provide access for remote support, programming and maintenance.

2.1 A/V upgrades will include:

2.1.1 Cotillion Room:

2.1.1.1 -Retain original projector and screen.

2.1.1.2 -Wireless access point for mobile control tablet and air play (See Enclosure 1 for Technical Specifications).

a. -Araknis Networks or like AN-810-AP-I-AC Access Point, 810 Series
Indoor Wireless Access Point, White

2.1.1.3 -2-HDMI input plates for presentation (See Enclosure 2 for Technical Specifications).

a. -C2G 39702 HDMI and USB Pass Through Wall Plate, insert, (1) HDMI
Female, (1) USB-B Female

2.1.1.4 -1-7" touch panel (See Enclosure 4 & 5 for Technical Specifications).

a. -Crestron AM-3200 AirMedia Receiver, AirMedia® Receiver 3200

b. -Crestron TSW-770-W-S 7" Touch Screen, Wall Mount, White

2.1.1.5 -1-PTZ camera with output for local presentation VTC (Via USB plate) (See Enclosure 6 for Technical Specifications).

a. - 4K IP PTZ Camera, 30x optical zoom, 63° Horizontal Field of View, HDMI,
Ethernet, 12G-SDI image output

2.1.1.6 -1-wireless handheld / lavalier microphone (See Enclosure 7 for Technical Specifications).

a. -Audio Technica ATW-1312/L Handheld, Lavalier System, System PRO
Digital Combo System, 1 ATW-T1003 Handheld, 1 ATWT1001Bodypack and 1
MT830cW Lavalier Microphone, Black

2.1.1.7 - Retain existing sound system and repair if needed.

2.1.1.8 - Any required additional wiring, interfaces, encoder/decoders etc to properly connect components.

2.1.2 Colonial Room:

2.1.2.1 -1 replacement Laser video projector and lens (original mounting bracket) (See Enclosure 8 for Technical Specifications).

a. -Eiki EK-308U, 6,000 lumen LCD projector, WUXGA, manual zoom & focus lens, 2 HDMI

b. -Eiki AH-A22030, Eiki Lens with 1.22 - 1.53 Throw Ratio Part# AH-A22030

2.1.2.2 -Retain original video screen

2.1.2.3 -Wireless access point for mobile control tablet and air play (See Enclosure 1 for Technical Specifications).

a. -Araknis Networks AN-810-AP-I-AC Access Point, 810 Series Indoor Wireless Access Point, White

2.1.2.4 -1-HDMI input plate for presentation (See Enclosure 2 for Technical Specifications).

a. -C2G 39702 HDMI and USB Pass Through Wall Plate, insert, (1) HDMI Female, (1) USB-B Female

2.1.2.5 -1-7" touch panel (See Enclosure 4 & 5 for Technical Specifications).

a. -Crestron AM-3200 AirMedia Receiver, AirMedia® Receiver 3200

b. -Crestron TSW-770-W-S 7" Touch Screen, Wall Mount, White

2.1.2.6 -1-PTZ camera with output for local presentation VTC (Via USB plate) (See Enclosure 6 for Technical Specifications).

a. - 4K IP PTZ Camera, 30x optical zoom, 63° Horizontal Field of View, HDMI, Ethernet, 12G-SDI image output

2.1.2.7 -1-wireless handheld / lavalier microphone (See Enclosure 7 for Technical Specifications).

a. -Audio Technica ATW-1312/L Handheld, Lavalier System, System PRO Digital Combo System, 1 ATW-T1003 Handheld, 1 ATWT1001Bodypack and 1 MT830cW Lavalier Microphone, Black

2.1.2.8 - Retain existing sound system and repair if needed

2.1.2.9 - Any required additional wiring, interfaces, encoder/decoders etc to properly connect components.

2.1.3 Starlifter Room:

2.1.3.1 -New projector and screen

- a. -DA-LITE 70099 Recessed Projection Screen, Advantage ceiling recessed screen, wide 16:10 format, 72.5" H x 116" W, 137" diagonal, matte white, automatic door, lvc built in
- b. -Eiki EK-308U, 6,000 lumen LCD projector, WUXGA, manual zoom & focus lens, 2 HDMI
- c. -Eiki AH-A22030, Eiki Lens with 1.22 - 1.53 Throw Ratio Part# AH-A22030

2.1.3.2 -Wireless access point for mobile control tablet and air play (See Enclosure 1 for Technical Specifications).

- a. -Araknis Networks AN-810-AP-I-AC Access Point, 810 Series Indoor Wireless Access Point, White

2.1.3.3 -1-HDMI input plate for presentation (See Enclosure 2 for Technical Specifications).

- a. -C2G 39702 HDMI and USB Pass Through Wall Plate, insert, (1) HDMI Female, (1) USB-B Female

2.1.3.4 -1-7" touch panel (See Enclosure 4 & 5 for Technical Specifications).

- a. -Crestron AM-3200 AirMedia Receiver, AirMedia® Receiver 3200
- b. -Crestron TSW-770-W-S 7" Touch Screen, Wall Mount, White

2.1.3.5 -1-PTZ camera with output for local presentation VTC (Via USB plate) (See Enclosure 6 for Technical Specifications).

- a. - 4K IP PTZ Camera, 30x optical zoom, 63° Horizontal Field of View, HDMI, Ethernet, 12G-SDI image output

2.1.3.6 -1-wireless handheld / lavalier microphone (See Enclosure 7 for Technical Specifications).

- a. -Audio Technica ATW-1312/L Handheld, Lavalier System, System PRO Digital Combo System, 1 ATW-T1003 Handheld, 1 ATWT1001Bodypack And 1 MT830cW Lavalier Microphone, Black

2.1.3.7 - Retain existing sound system and repair if needed.

2.1.3.8 - Any required additional wiring, interfaces, encoder/decoders etc to properly connect components.

2.1.4 Imperial Room:

2.1.4.1 -A/V cart with 65" flat panel display

- a. -Crimson (or like) AV M90XL Mobile Cart, Fully loaded heavy duty mobile cart with two side shelves, top shelf, front/back shelf, back panel and cover for displays from 50" - 90" (See Enclosure 9 for Technical Specifications).
- b. -Commercial Grade 65" 4K Crystal UHD LED Pro TV, 3Yr Warranty, HDMI X 2, USB X 1, 4,700:1 Contrast, 60Hz

2.1.4.2 -Wireless access point for mobile control tablet (See Enclosure 1 for Technical Specifications).

- a. -Araknis Networks AN-810-AP-I-AC Access Point, 810 Series Indoor Wireless Access Point, White

2.1.4.3 -1-7" touch panel (See Enclosure 4 & 5 for Technical Specifications).

- a. -Crestron AM-3200 AirMedia Receiver, AirMedia® Receiver 3200
- b. -Crestron TSW-770-W-S 7" Touch Screen, Wall Mount, White

2.1.4.4

2.1.4.5 -1-HDMI input plate for presentation (See Enclosure 2 for Technical Specifications).

- a. -C2G 39702 HDMI and USB Pass Through Wall Plate, insert, (1) HDMI Female, (1) USB-B Female

2.1.4.6 -1 HDMI output plate for 65" display (when stationary) (See Enclosure 3 for Technical Specifications).

- a. -C2G 39870 HDMI Pass Through Plate, HDMI® Pass Through Single Gang Wall Plate - Brushed Aluminum

2.1.4.7 -1-PTZ camera with output for local presentation VTC (Via USB plate) (See Enclosure 6 for Technical Specifications).

- a. - 4K IP PTZ Camera, 30x optical zoom, 63° Horizontal Field of View, HDMI, Ethernet, 12G-SDI image output

2.1.4.8 -2- in ceiling speakers

- a. -JBL Control 47 C/T Loudspeaker WH, Two-Way 6.5" coaxial ceiling loudspeaker with extended bass, White

2.1.4.9 - Any required additional wiring, interfaces, encoder/decoders etc to properly connect components.

2.1.5 Liberty Room:

2.1.5.1 -Retain original video screen and projector

2.1.5.2 -Wireless access point for mobile control tablet and air play (See Enclosure 1 for Technical Specifications).

a. -Araknis Networks AN-810-AP-I-AC Access Point, 810 Series Indoor Wireless Access Point, White

2.1.5.3 -1-HDMI input plate for presentation (See Enclosure 2 for Technical Specifications).

a. -C2G 39702 HDMI and USB Pass Through Wall Plate, insert, (1) HDMI Female, (1) USB-B Female

2.1.5.4 -1-7" touch panel (See Enclosure 4 & 5 for Technical Specifications).

a. -Crestron AM-3200 AirMedia Receiver, AirMedia® Receiver 3200

b. -Crestron TSW-770-W-S 7" Touch Screen, Wall Mount, White

2.1.5.5 -1-PTZ camera with output for local presentation VTC (Via USB plate) (See Enclosure 6 for Technical Specifications).

a. - 4K IP PTZ Camera, 30x optical zoom, 63° Horizontal Field of View, HDMI, Ethernet, 12G-SDI image output

2.1.5.6 -1-wireless handheld / lavalier microphone (See Enclosure 7 for Technical Specifications).

a. -Audio Technica ATW-1312/L Handheld, Lavalier System, System PRO Digital Combo System, 1 ATW-T1003 Handheld, 1 ATWT1001Bodypack And 1 MT830cW Lavalier Microphone, Black

2.1.5.7 -retain existing sound system and repair if needed.

2.1.5.8 - Any required additional wiring, interfaces, encoder/decoders etc to properly connect components.

2.1.6 Rack/Coat check Room:

- 2.1.6.1 -Install Larger equipment racks with cooling system.
 - a. -1 Strong SR-AV-CAB-32U-25IN 32 Space Rack, Floor standing rack, 25" depth, includes smoked and tempered glass door, removable side.
 - b. -1 Strong SR-AV-CAB-42U-30IN Enclosure, Signature Series Premium Enclosure - 30 Inch Depth | 42U panels, leveling feet and casters included.
- 2.1.6.2 -Wireless access point for mobile control tablet (See Enclosure 1 for Technical Specifications).
 - a. -Araknis Networks AN-810-AP-I-AC Access Point, 810 Series Indoor Wireless Access Point, White
- 2.1.6.3 -retain existing amplifiers, DVD players, CD players and speaker wiring.
- 2.1.6.4 -Install additional amplifier for the additional speakers installed.
 - a. -Crown CDi 1000 Two-Channel Amplifier, 500W @ 4, 70V/140V
- 2.1.6.5 -Installation of the following equipment for management of the system:
 - a. -Araknis Networks AN-210-SW-R-16-POE 16 port switch, 210 Series Websmart Gigabit Switch with Partial PoE+ and Rear Ports
 - b. -Araknis Networks AN-310-RT-4L2W VPN Router, 310-Series Gigabit VPN Router
- 2.1.6.6 -Install new Crestron controller
 - a. -Crestron Electronics CP4N Control Processor
- 2.1.6.7 - Any required additional wiring, power distribution, cooling components interfaces, encoder/decoders etc to properly connect and protect components.

2.1.7 Front Office:

2.1.7.1 -Laptop

- a. - 15.6" Touchscreen Business Laptop, Laptop must conform to Air Force standards set forth in Enclosure 10, SAF Memo dated 18 April 2022.

2.1.7.2 -Mobile ipad or like tablet for control

2.1.7.3 -Wireless access point for mobile control tablet (See Enclosure 1 for Technical Specifications).

- a. -Araknis Networks AN-810-AP-I-AC Access Point, 810 Series Indoor Wireless Access Point, White

2.1.7.4 -HDMI input plate (See Enclosure 3 for Technical Specifications).

- a. -C2G 39870 HDMI Pass Through Plate, HDMI® Pass Through Single Gang Wall Plate - Brushed Aluminum

2.1.7.5 -32" video monitor for source monitoring

- a. -Commercial Grade 32" Flat Panel Display, 32" Flat Panel Display, 720p, 60Hz, 2xHDMI, Black

2.1.7.6 - Any required additional wiring, interfaces, encoder/decoders etc, to properly connect components.

- 3.0 All final testing and acceptance of the system and upgrades will be conducted with a staff member from the Community Center as well as a member of the IT staff present.
- 4.0 Initial onsite training will be conducted by Contractor's technicians with the staff of the Community Center and the 87FSS IT Office technicians upon completion of this upgrade.
- 5.0 Installation items must be neatly stored in a manner not to cause a hazard to Community Center staff or it's visitors.
- 6.0 All excess packing and installation materials must be properly disposed of at the end of each work day and at the completion of this installation.
- 7.0 Cybersecurity: All system components installed must be in compliance with DoD, Federal, and NIST RMF cybersecurity standards. The contractor will assist the 87 ABW with achieving an Authority to Operate (ATO).
Note: If there is another DoD entity that has an approved ATO or certification for the same hardware and software, reciprocity can be used to forgo testing. The system shall then be added to the Base System Security Authorization Agreement. All networkable equipment such as network switches, servers, etc. provided in this contract should be compatible to undergo the above-described certifications and accreditations.
- 7.0.1 This installation will use only Air Force approved hardware. Installed software shall be approved for use on the AF-GIG and listed on the AF Evaluated Products List. The list or certification can be from another branch or DoD Approved products Listing, if it has certification from another branch Reciprocity can be used. Again, a copy of certification will have to be provided.
- 7.0.2 Software: <https://cs2.eis.af.mil/sites/13954/Lists/COTSGOTS%20Software/EPL.aspx>
- 7.0.3 Hardware: <https://aplits.disa.mil/aplhttps://aplits.disa.mil/apl>
- 7.0.4 The contractor shall provide a network diagram for the building and the system. The diagram will consist of the type and number of c video server, video storage, network switches, and patch panels.
- 8.0 The contractor shall complete all aspects of this requirement within **90** days of award.

The point of contact for this Statement of Work is; Robert Swinger,
Chief of Information Technology, 87th FSS, (609) 562-6288

Robert S. Swinger
Chief of Information Technology, 87th
Force Support Squadron

Enclosure 1

AN-810-AP-I-AC
Antenna: 4x4
Outdoor Rating: No
RJ-45 1000BASE-T Ports: 2
Wireless Mode(s): 802.11 a/b/g/n/ac Wave 2
PoE Features: PoE 802.3at Compliant PSE
PoE Consumption: Power On: 7.30W Full Load (Without USB 2.0): 19.1W Full Load (with USB 2.0): 21.9W
Antennas: Embedded Antenna, Omni-Directional
Antenna MIMO: 4x4:4 MU-MIMO
PHY Data Rate: Up to 800Mbps @ 2.4GHz Up to 1733Mbps @ 5GHz
Operating Frequencies: 2.4 GHz & 5 GHz
Channel Bonding: Yes (20 MHz, 40 MHz, and 80MHz)
Max TX Power: 22dBm @ 2.4GHz 24dBm @ 5GHz
Wireless Features:

AN-810-AP-I-AC
Auto Channel Selection Operation Modes: Access Point, Repeater Multiple SSIDs: up to 8 per radio Wireless Security: WPA2-PSK (AES + TKIP), WPA-Enterprise MAC Address Filtering Hide SSID Guest Network Beamforming
VLAN Features: Yes, 802.1Q
QoS Features: Yes, WME 802.11e
RJ45 Auto Sensing: Yes
RJ45 Auto Negotiation: Yes
Spanning Tree: Yes, 802.1d
Management Features: Web Management Telnet SNMP v1, v2c, v3 DHCP Client System Log Bonjour UPnP Remote Config File Download/Upload OvrC Services Wi-Fi Scheduler Site Survey LED Control Auto Reboot
Line Voltage: 12V 2A DC
Operating Temperature: 32-122°F
Storage Temperature: -4-140°F

AN-810-AP-I-AC
Operating Humidity: 90% or less
Certifications: CE, FCC, IC, Wi-Fi
Diameter: 9.25" x 1.91"
Weight: 1.6 lbs

Enclosure 2



HDMI and USB Pass Through Wall Plate - White

#39702

The HDMI and USB Pass-Through Wall Plate is perfect for the transition to in-wall cabling. The HDMI pass-through port includes a thin, flexible HDMI pigtail that accommodates the tight bend radius required for installations within a standard junction box. The USB pass-through provides support for passive extensions of up to five meters of total cable length, but may be used with an active USB extension solution for longer distance connections. Constructed of aircraft grade aluminum, this wall plate is designed for durability and a long life.

Specifications

General Info

Product Line	C2G
Color	White
UPC Number	757120397021

Country Of Origin	Vietnam
Application Sector	Residential, Commercial
Type	Wall Plate
Technical Information	
Video Resolution	4K, 1080p

Enclosure 3



HDMI® Pass Through Single Gang Wall Plate - Brushed Aluminum

#39870

The HDMI Pass Through Single Gang Wall Plate is perfect for the transition to in-wall cabling. This solution offers a clean, professional look and is ideal for classrooms, conference rooms and houses of worship.

Convenience

The HDMI pass through port includes a thin, flexible HDMI pigtail that accommodates the tight bend radius required for installations within a standard junction box.

Durability

Constructed of high quality aluminum, this wall plate is designed for durability and a long life in commercial environments where constant wear and tear causes damage.

Specifications

General Info

Product Line

C2G

Color

Aluminum

UPC Number	757120398707
Country Of Origin	Vietnam
Application Sector	Residential, Commercial
Type	Wall Plate
Technical Information	
Wire Gauge	30 AWG
Video Resolution	4K, 1080p
Bend Radius	30 mm
Number of Gangs	1
Voltage	30 V

Enclosure 4



AM-3200

AirMedia® Receiver 3200

The AirMedia® Receiver 3200 (AM-3200) enables secure wireless collaboration in the modern digital workspace. Easy to deploy and manage, install the Receiver in conference rooms, huddle rooms, lounges, lobbies, or almost any space to establish a productive meeting environment.

Connect and Present

The Receiver mounts invisibly behind or beside a wall-mount display and enables a smart room with wireless collaboration. It features AirMedia wireless presentation capability, an HDMI® output to the display (up to 4K), an HDMI input, and various USB interfaces for wireless conferencing. Connect your laptop, smart phone, tablet, or other source type to instantly present the source image on the display.

AirMedia Wireless Presentation

With AirMedia technology, users can wirelessly present content from laptops, smartphones, and tablet devices via an external Wi-Fi® wireless network. Present content from desktop or laptop computers using downloadable client software, the AirMedia extension for the Google Chrome™ web browser (Windows® 10 computers only). Present content from Android™ and iOS® mobile devices with the AirMedia app.

For more information about AirMedia, visit www.crestron.com/airmedia.¹

HDMI Connectivity

In addition to AirMedia, the AM-3200 includes an HDMI input for direct connection of a local source, such as a Mini PC, or a portable laptop computer via an optional wall plate or cable. The HDMI input supports HD 1080p/60 signals.²

Multi-Source Presentation

Present up to four sources simultaneously with the AirMedia Canvas feature. To maximize screen coverage, AirMedia Canvas automatically configures the best possible layout based on the number of active presenters, the type of sources, and their aspect ratios.³ Use the AirMedia app or a connected touch screen (sold separately) to manage sources and their position on the display.

Wireless Conferencing

Wireless conferencing provides a premium collaboration experience by enabling video calling from almost any device.⁴ The AirMedia application provides wireless access to a host of connected conferencing peripherals, such as soundbars, cameras, or speakerphones. Peripherals are immediately available on the user's laptop for use in Microsoft Teams® software or Zoom™ software.

Enhanced Onscreen Experience

When no source is connected, the AM-3200 displays a customizable welcome screen on the room display with simple instructions for connecting and presenting. Integration with Microsoft Exchange Server® (for Outlook® and Microsoft 365® software users), Google Calendar™, or Crestron Fusion® room scheduling software allows the space's availability and meeting details to appear onscreen. As the meeting progresses, notifications appear periodically to indicate both the time left in the meeting and the next scheduled event. Pop-up messages sent from Crestron Fusion may also appear in the event of an emergency or to deliver an important announcement.

Add-on Control Options

Enable manual control of the AM-3200 by adding a 7 in. or 10 in. Crestron® TS- or TSW- [70 series touch screen](#). The touch screen provides an additional view of the room schedule and meeting details as well as controls for input source selection, display power on/off, and display volume and mute. Add a Power over Ethernet occupancy sensor ([CEN-ODT-C-POE](#)) to control display or digital signage on/off based on room occupancy or vacancy.

XiO Cloud® Provisioning and Management Service

The AM-3200 is compatible with the XiO Cloud service, which enables installers and IT managers to easily deploy and manage thousands of devices. The XiO Cloud service allows for system alerts and network management and provisioning.

For more information, visit www.crestron.com/xiocloud.

Native Appspace Functionality

Integrate the Appspace digital signage application with the AM-3200. The AM-3200 can display content from an Appspace digital signage channel when no presentation is being made, or the room is not occupied.

Crestron Fusion Room Monitoring

Presentation spaces can be managed and centrally monitored through the Crestron Fusion enterprise management service. By adding an optional occupancy sensor ([CEN-ODT-C-POE](#)), the AM-3200 can report and log when people are in the space, turn the display on and off accordingly, and make unused spaces available for new bookings.

Crestron Fusion software supports room scheduling, and can integrate with a variety of third-party calendaring applications. Instant alerts notify the help desk to rapidly resolve any problems and maximize uptime and workflow.

For more information about Crestron Fusion, visit www.crestron.com/fusion.

Enterprise-Grade Security

The AirMedia Presentation System is an enterprise-grade solution that can be deployed across hundreds of spaces and set up easily using just a web browser, Crestron Fusion, or XiO Cloud software. Employing standard network security protocols such as 802.1x network access control, Active Directory® authentication, and AES content encryption, the AM-3200 protects privacy and ensures compliance with your organization's IT policies.

Key Features

- Complete room solution enables secure presentation from laptops, smartphones, and tablet devices using either a wired HDMI® connection or a wireless AirMedia® connection
 - Integration friendly features such as HDMI® input, dual LAN, balanced audio output, and display control via RS-232 and IR
 - Enables smart automation via intelligent display control, personal device control, occupancy detection, and integration into a broader connected ecosystem
 - Enterprise-grade security and content encryption protects privacy and ensures compliance with IT policies
 - XiO Cloud® service support for remote provisioning and management
 - Integrates with Appspace® digital signage software platform for content display
 - Supports content sharing of four simultaneous sources for multi-user collaboration with AirMedia Canvas.
 - Wireless conferencing and presentation allows for collaboration with in-room and remote participants
1. AirMedia wireless presentation requires a wired network connection between the AM-3200 and an external Wi-Fi wireless access point (not included). Laptops may alternately connect to AirMedia using a wired Ethernet connection. Full-motion video performance is dependent upon the performance of the network and the sending device. Computer client software and mobile device apps are available for download at www.crestron.com/airmedia.
 2. Using an appropriate adapter or interface cable, the HDMI input can support DVI and Dual-Mode DisplayPort sources, and the HDMI output can provide a DVI signal. CBL-HD-DVI interface cables are available separately.
 3. When the AirMedia Canvas feature is enabled, the 4:2:0 color space is used for high definition sources connected to the HDMI input port. When the AirMedia Canvas feature is disabled, the 4:4:4 color space is used. If the 4:4:4 color space is required by sources connected to the HDMI input port, the AirMedia Canvas feature should be disabled.

4. Crestron supports most mainstream devices and applications. Refer to the [AirMedia Series 3 Product Manual](#) for a complete list.
5. TLS 1.3 is currently not supported.
6. With or without reduced blanking.

Communications

Ethernet	100/1000 Mbps, auto-switching, autonegotiating, autodiscovery, full/half duplex, TCP/IP, UDP/IP, DHCP, SSL, TLS ⁵ , SSH, SFTP (SSH File Transfer Protocol), IEEE 802.1x, Active Directory authentication, HTTPS web browser setup and XiO Cloud service, 802.3af compliant
AirMedia	Via Ethernet: IPv4, mDNS, TLS, AES ¹
USB Host	USB 2.0 for connecting a USB conferencing peripheral; USB 3.0 for connecting a USB conferencing peripheral
USB Device	USB 3.0 for computer console (installer setup and firmware update)
RS-232	2-way display device control up to 115.2k baud with hardware and software handshaking
IR/Serial	1-way display device control via infrared up to 1.1 MHz or serial TTL/RS-232 (0-5V) up to 19.2k baud
HDMI Input	HDCP 1.4, EDID; Supports management of HDCP and EDID
HDMI Output	HDCP 2.2, EDID, CEC; Supports management of HDCP and EDID

Video

Input Signal Types	AirMedia, HDMI (DVI & Dual-Mode DisplayPort™ compatible ²); Simultaneous display of up to four sources with AirMedia Canvas HDMI Input: 1920x1080@60Hz (HD 1080p60); AirMedia presentation: 1920x1080@30Hz (1080p30)
Maximum Input Resolutions	<p><i>NOTES:</i></p> <ul style="list-style-type: none"> • <i>Other input resolutions are supported at pixel clock rates up to 148 MHz; interlaced video is not supported.</i> • <i>All video inputs will be scaled to the selected HDMI output resolution.</i>
Output Signal Types	HDMI (DVI compatible ²)
HDMI Output Resolutions	1280x720@50Hz (720p50), 1280x720@60Hz (720p60), 1280x800@60Hz, ⁶ 1366x768@60Hz, ⁶ 1440x900@60Hz, ⁶ 1600x900@60Hz, ⁶ 1600x1200@60Hz, 1680x1050@60Hz, ⁶ 1920x1080@50Hz (1080p50), 1920x1080@60Hz (1080p60), 3840x2160@30Hz (2160p30), 3840x2160@50Hz (2160p50), 3840x2160@60Hz (2160p60)
	<i>NOTE: All video inputs will be scaled to the selected HDMI output resolution.</i>

Background & Logo File Support	GIF, JPEG, PNG
Audio	
Input Signal Types	AirMedia, HDMI (Dual-Mode DisplayPort™ compatible ²)
Output Signal Type	HDMI
Input/Output Format	2 channel LPCM
<i>NOTE: Audio input signals are passed to the output without any processing. Volume control capability requires a display device with discrete volume, up, down, and mute commands available via CEC, IP, IR, or RS-232.</i>	
AirMedia Software¹	
OS Support	Apple® iOS®, Android™, Windows 10, Windows 11, macOS®, Chrome OS™
Video Frame Rate	Up to 30 fps, audio supported
Output Resolutions	<i>NOTE: Audio is not supported on Android devices.</i>
	640x480@60Hz, 800x600@60Hz, 1024x768@60Hz, 1280x720@50Hz (720p50), 1280x720@60Hz (720p60), 1280x800@60Hz, 1366x768@60Hz, 1440x900@60Hz, 1600x900@60Hz, 1600x1200@60Hz, 1680x1050@60Hz, 1920x1080@50Hz (1080p50), 1920x1080@60Hz (1080p60)
<i>NOTE: All video inputs will be scaled to the selected HDMI output resolution.</i>	
Bitrate Peak	0.25 to 8.5 Mbps, variable depending on content complexity
	1.4 Mbps typical
<i>NOTES:</i>	
	<ul style="list-style-type: none"> • The bitrate for Apple native mirroring may deviate from above depending on the OS version and content.
Bitrate Average	<ul style="list-style-type: none"> • The AirMedia Extension for the Google Chrome browser relies on web technologies for screen sharing that are built-in to the web browser. Performance variations with motion video (quality and frame rate) may occur based upon the encoding capabilities of the Chrome OS device and the nature of the content being displayed (i.e., high-motion video).
Audio Format	Stereo
Wireless Conferencing	
OS Support	Windows 10
Supported Conferencing Services	Microsoft Teams software; Zoom software

Supported Conferencing Peripherals Connectors

For a list of supported conferencing peripherals, refer to [OLH 1001764](#).

IR	(1) 2-pin 3.5 mm detachable terminal block; IR/Serial output port for display device control; IR output up to 1.1 MHz; 1-way serial TTL/RS-232 (0-5V) up to 19200 baud
<i>NOTE: IR port #2 is not used. IRP2 emitter sold separately.</i>	
COM	(1) 5-pin 3.5 mm detachable terminal block; Bidirectional RS-232 port for display device control; Up to 115.2k baud, hardware and software handshaking support
AUDIO OUT	(1) 5-pin 3.5 mm detachable terminal block; Balanced/unbalanced stereo line-level audio output; Maximum Output Level: 4 Vrms balanced, 2 Vrms unbalanced; Output Impedance: 200 ohms balanced, 100 ohms unbalanced
microSD	For future use
HDMI INPUT	(1) HDMI Type A connector; HDMI digital video/audio input; (DVI & Dual-Mode DisplayPort compatible ²)
HDMI OUTPUT	(1) HDMI Type A connector; HDMI digital video/audio output (DVI compatible ²)
USB	(2) USB Type A connectors; For future use (1) USB Type B connector; USB 3.0 device port for computer console
LAN PoE+	(1) 8-pin RJ-45 connector; 100Base-TX/1000Base-T Ethernet port and PoE+ Class 4
LAN AUX	(1) 8-pin RJ-45 connector; 100Base-TX/1000Base-T Ethernet port; Connects to a secondary, guest-only network
24VDC 1.25A	(1) 2.1 x 5.5 mm DC power connector; 24VDC power input; PW-2412WU power pack sold separately

Controls and Indicators

PWR	(1) Green LED, indicates operating power supplied via the local power pack or PoE+
RESET	(1) Recessed push button for hardware reset
SETUP	(1) Green LED and (1) recessed push button for onscreen IP address display
ONLINE	(1) Green LED, indicates control system connection
HDMI IN/OUT	(2) Green LEDs, indicate HDMI signal presence at the HDMI input/output
microSD	For future use

LAN PoE+	(2) LEDs, green LED indicates Ethernet link status, amber LED indicates Ethernet activity
LAN AUX	(2) LEDs, green LED indicates Ethernet link status, amber LED indicates Ethernet activity

Power

Power over Ethernet	IEEE 802.3af Class 4 Powered Device
Power Pack (sold separately)	Input: 100-240VAC, 50/60 Hz; Output: 1.25A @ 24VDC; Model: PW-2412WU
Power Consumption	14 W (typical)

NOTE: When wireless conferencing is used, the receiver must be powered by either Power over Ethernet+ (PoE+) or a power pack (sold separately).

Environmental

Temperature	32° to 104°F (-0° to 40° C)
Humidity	10% to 90% RH (non-condensing)
Heat Dissipation	47.8 BTU/hr

Construction

Chassis	Metal, black finish, with (2) integral mounting flanges, vented sides
Mounting	Freestanding, surface mount, or attach to a single rack rail

Dimensions

Height	1.26 in. (33 mm)
Width	7.40 in. (188 mm)
Depth	6.42 in. (163 mm)

Weight

1.9 lb (0.86 kg)

Compliance

Regulatory Model: M202011001

Intertek® Listed for US & Canada, CE, IC, FCC Part 15 Class B digital device

Click [here](#) to search product certificates.

1. AirMedia wireless presentation requires a wired network connection between the AM-3200 and an external Wi-Fi wireless access point (not included). Laptops may alternately connect to AirMedia using a wired Ethernet connection. Full-motion video performance is dependent upon the performance of the network and the sending device. Computer client software and mobile device apps are available for download at www.crestron.com/airmedia.
2. Using an appropriate adapter or interface cable, the HDMI input can support DVI and Dual-Mode DisplayPort sources, and the HDMI output can provide a DVI signal. CBL-HD-DVI interface cables are available separately.
3. When the AirMedia Canvas feature is enabled, the 4:2:0 color space is used for high definition sources connected to the HDMI input port. When the AirMedia Canvas feature is disabled, the 4:4:4 color space is used. If the 4:4:4 color space is required by sources connected to the HDMI input port, the AirMedia Canvas feature should be disabled.
4. Crestron supports most mainstream devices and applications. Refer to the [AirMedia Series 3 Product Manual](#) for a complete list.
5. TLS 1.3 is currently not supported.

The Crestron® TSW-770 series is a stylish and versatile wall mount touch screen that is ideal for residential and enterprise applications. The TSW-770 features a 7 in. (178 mm) capacitive touch screen display with custom-programmable control buttons and support for Smart Graphics® software and HTML5-based custom UI projects. PoE and Wi-Fi® network connectivity and a comprehensive assortment of mounting accessories simplify new and retrofit installations.

Advanced Touch Screen Control

The TSW-770 offers a sleek and powerful user interface for controlling technology in a home, boardroom, classroom, or command center. The touch screen provides an intuitive interface that is fully customizable with easy-to-use capacitive controls, true feedback, and real-time status display. A built-in proximity sensor wakes the screen without requiring any user interaction, and automatic brightness controls ensure optimal visibility under varying lighting conditions.

Custom-Programmable Virtual Buttons

The TSW-770 provides a universal status bar that is populated with virtual buttons for quick access to common touch screen functions. The touch screen comes preconfigured with virtual buttons for Power, Home, Lights, Up, Down, and Microphone. Each button can be programmed via a Crestron control system to provide custom functionality, and unused buttons can be hidden individually. The universal status bar is expanded or hidden using simple swipe gestures on touch screen display.

Dynamic User Interfaces

The TSW-770 supports custom user interfaces created with [Crestron HTML5 User Interface](#) and Smart Graphics technologies, allowing greater flexibility for UI developers and programmers.

- Crestron HTML5 User Interface enables UI designers to develop rich, front-end user interfaces with increased reusability and efficiency using modern web methodologies. Crestron HTML5 User Interface development tools are provided to simplify creating user interfaces built on standard web technologies
- Smart Graphics enables programmers to integrate fluid gesture-driven controls, animated feedback, rich metadata, embedded apps and widgets, and full-motion video into their user interfaces. Smart Graphics provides dynamic features such as graphical buttons and

sliders, lists and toolbars, drag-and-drop objects, dashboard widgets, screensavers, and customizable themes.

Voice Recognition

With built-in voice recognition, spoken commands can be issued to the TSW-770 to quickly turn devices on or off, select and play a specific media source, change the channel, choose a lighting scene, lower the window shades, lock the doors, arm the security system, or enter a password. Simply say a command and Crestron does the rest.^{1,2}

Streaming Video

Native support for H.265, H.264, and MJPEG formats allows the TSW-770 to display live streaming video from an IP camera, a streaming encoder (Crestron [DM-TXRX-100-STR](#), or similar), or a [DigitalMedia™ switcher](#).³ Video is delivered to the touch screen over Ethernet, eliminating the need for any extra video wiring.

Rava SIP Intercom

[Rava SIP Intercom Technology](#) enables hands-free VoIP communication with other Rava-enabled touch screens and door stations. Rava works over Ethernet, supporting 2-way intercom and paging without requiring any special wiring. VoIP phone capability is also possible through integration with a SIP-compatible IP phone system or SIP server, allowing hands-free telephone functionality complete with speed-dialing, caller ID, custom ringers, and other enhancements. Built-in echo cancellation affords full-duplex performance for clear, seamless voice communication using the integrated microphone and speakers.²

Sonos App

[Sonos and Crestron](#) have partnered to provide a powerful whole-house music experience. From any touch screen in the house, browse for tracks, artists, or playlists using all the services available from Sonos and instantly play them in any room using Sonos® wireless speakers or a Crestron [Sonnex® multiroom audio system](#). The Sonos app runs natively on the TSW-770, enabling enhanced control of Sonos products as part of a complete Crestron system. The app checks for updates nightly so it's always current, and support for the Sonos S2 App is provided.¹

Crestron Room Scheduling App

As part of a complete enterprise room scheduling solution, the TSW-770 can be deployed as a scheduling panel via the Crestron room scheduling app. A Crestron scheduling panel can be installed at the entrance of a meeting room to provide indication of the room's availability and a view of its schedule for the day. If desired, the room can be reserved on the spot for an ad hoc meeting. A [CEN-ODT-C-POE](#) occupancy sensor can also be paired to the touch screen, allowing for occupancy status to be reported instantly to the scheduling app for no-shows and unscheduled room usage.^{3,4}

Running the Crestron Scheduling App, the TSW-770 integrates directly with [Crestron Fusion®](#) software, Microsoft Exchange Server® software (for users of Outlook® software and Office 365® software), the Google Calendar™ calendaring app (including G Suite™ software), CollegeNET® 25Live® scheduling software, or Ad Astra™ software. IBM® Notes® software is also supported through a Crestron Fusion on-premises server.

Third-Party Scheduling Apps

The TSW-770 also includes support various third-party scheduling applications. New providers are made available via firmware updates. Whatever provider you choose, setup is as simple as connecting the touch screen to the network and choosing an app from the web-based setup menu or built-in setup screens. The selected app downloads from the cloud and installs on the touch screen without any programming or control system required.^{5,6}

Zoom Rooms App

The [Zoom Rooms™](#) conferencing control application enables the TSW-770 to be used as a touch screen control panel for a Zoom Rooms software-based conferencing and collaboration solution. The TSW-770 offers a superior alternative to a consumer tablet device, providing a more reliable and secure platform with versatile, streamlined mounting options. The TSW-770 may be configured to run the Zoom Rooms app exclusively, or to allow toggling between the Zoom Rooms app and touch screen control mode. The latter option is used to integrate Zoom Rooms conferencing into a larger AV system while providing touch screen control for both.⁷

NOTE: The Zoom ultrasonic proximity signal is supported up to an average of 9 ft (2.74 m)

from the TSW-770 touch screen to an end user device. The range will vary based on environmental noise, the sensitivity of the end user device, and the orientation to the touch screen.

Crestron Home OS Control

The TSW-770 may be used to control a [Crestron Home® OS](#) whole home solution. Select the Crestron Home app from the touch screen to control lighting, shades, climate, media, security, and cameras, including the ability to create and recall scenes that create a desired ambiance throughout a home. A TSW-770 may be installed in each room to provide easy access to various Crestron Home functions for both the room and the home.

Bluetooth Beacon

The built-in Bluetooth® proximity detection beacon enhances the intelligence and personalization of a Crestron system by enabling a smartphone or tablet device to always know what room it is in. It works with the Crestron Go App and Crestron App to determine when the mobile device is in or near the same room as the beacon, and signals the mobile app to automatically display the appropriate controls and information for the room.^{2,8}

Web Browsing

Using its built-in web browser, the TSW-770 provides access to online program guides and other web-based services, and it can be used to control DVRs and other devices without having to pick up a separate tablet or smartphone.¹

Wired and Wi-Fi Connectivity

An Ethernet LAN connection is all that is required to wire the TSW-770, containing all control, video, intercom, and power signals within a single wire.

For deployments without access to Ethernet, the touch screen can also be connected the network over Wi-Fi communications via a local wireless access point (WAP).

Power over Ethernet

Using PoE technology, the TSW-770 gets its operating power directly through the network cable. PoE (Power over Ethernet) eliminates the need for a local power supply or any dedicated power wiring. Crestron PoE switches ([CEN-SW-POE-5](#) or [CEN-SWPOE-16³](#)) offer

a total networking solution with built-in PoE for multiple touch screens. A PoE Injector ([PWE-4803RU](#)³) is also available to support a single touch screen.

NOTE: Refer to the “Power” specifications for more details.

Room Scheduling Accessories

The TSW-770 provides dual high-speed USB 2.0 ports for connecting supported Crestron room scheduling accessories to the touch screen.³

NOTE: The touch screen supports the use of a single light bar or status indicator accessory only. The [RFID-USB](#) card reader accessory can be connected to the second USB port.

- The [TSW-770-LB](#) series light bars provide a 180° visual indication of a room’s availability status, illuminating green if the room is available and red when reserved, with options for custom color mixing and programming.³
- The [SSW](#), [SSW-EL](#), [SSC](#), and [SSC-EL](#) series hallway signs feature a two sided acrylic sign face that can be custom engraved with the room name or number. The [SIW-100](#) offers a lower profile wall mount status indicator.³

Enterprise-Grade Security

Crestron touch screens employ enterprise-grade networking with robust security features such as 802.1X authentication, TLS encryption, HTTPS connectivity, and Active Directory® service integration. These features are imperative to protect your network against service interruptions and malicious intrusions, and to ensure compliance with your organization’s network policies. Cloud-based provisioning and management streamlines the process of configuring, monitoring, and updating every touch screen on the network. Additional support for SNMP allows the touch screen to be monitored by your IT administrator.

XiO Cloud Service

The TSW-770 is compatible with the XiO Cloud® service, which is an IoT (Internet of Things) based platform for remotely provisioning, monitoring, and managing Crestron devices across an enterprise or an entire client base. Built on the Microsoft® Azure® software platform and utilizing Microsoft's industry-leading Azure IoT Hub technology, XiO Cloud enables installers and IT managers to deploy and manage thousands of devices in the time it previously took to manage just one. Unlike other virtual machine-based cloud

solutions, Azure services provide unlimited scalability to suit the ever-growing needs of an enterprise. For more information, visit www.crestron.com/xiocloud.

Crestron ONE App Support

The TSW-770 is compatible with the [Crestron ONE™ mobile room control app](#). The Crestron One app creates a peer-to-peer network over Bluetooth communications between a mobile device and the TSW-770 in the room, allowing mobile-optimized room controls to be pushed to the device from the touch screen. Programmers can specify the controls that display on the mobile app by mapping joins from Smart Graphics projects to the mobile project. A [SW-MOBILITY](#) license is required to enable mobile room control functionality.

Wall Mount Options

Using the bracket provided, the TSW-770 is easily installed over a 2-gang or 3-gang US electrical box, or a 2-gang European or UK electrical box. A security latch option is included to deter unauthorized removal of the touch screen.

Additional wall mounting options are afforded using the optional [TSW-UMB-70](#) universal mounting bracket, [TSW-UMB-70-PMK](#) preconstruction mounting kit, and [TSW-UMB-70-BBI](#) back box.^{3,9}

Optional Mounting Accessories

The TSW-770 supports numerous optional mounting accessories that allow the touch screen to be installed in all kinds of installations:

- The [TSW-770-MSMK](#) multisurface mount kit allows a TSW-770 touch screen to be mounted directly to virtually any flat surface, which is ideal for mounting at the entrance to a meeting space for room scheduling applications.³
- The [TS-770/1070-MUMK](#) allows the touch screen to be attached to the mullion of an interior glass wall, window, or partition.³
- The [TSW-770/1070-RMB-1](#) and [TSW-770/1070-RMB-2](#) retrofit mounting brackets allow for retrofit installations in place of an older Crestron touch screen (APAD, CT-1000, LC-1000, TPS-4L, or TPS-2000L) without having to tear out the old mounting hardware or patch the wall.³
- The [TSW-570/770-RMK-1](#) rack mount kit allows the touch screen to be mounted into a 19 in. rack. When installed, the touch screen occupies three rack spaces.³
- The [TSW-770-FP](#) face plate hides the electrical box from view when replacing a TSW-760 or TSS-7 series touch screen with a TSW-770 series touch screen.³

The TSW-770 is also compatible with Wall-Smart® flush wall mount products via a partnership with Crestron. For more information on supported Wall-Smart hardware, click [here](#).

Key Features

- Next generation Crestron® wall mount touch screen
 - 7 in. (178 mm) widescreen active-matrix color display and 1280 x 800 WXGA display resolution
 - Capacitive touch screen display
 - Custom-programmable virtual control buttons
 - Supports Crestron HTML5 and Smart Graphics® software custom user projects
 - Built-in Rava® SIP intercom
 - Built-in speakers and microphone
 - H.265, H.264, or MJPEG streaming video display
 - Native apps for Crestron Home® OS, Sonos® home sound control, Zoom Rooms™ conferencing control, and various room scheduling services
 - Built-in Bluetooth® communications beacon
 - Built-in web browsing
 - Single wire Ethernet connection with PoE or PoE+ power
 - Wi-Fi® network connectivity
 - Dual USB 2.0 ports for room availability accessories
 - Enterprise grade security and authentication
 - Web, cloud, or device-based configuration
 - Electrical box mounting with provided mounting bracket
1. Voice recognition, web browsing, weather information, and certain other functions require an Internet connection.
 2. The microphone and Bluetooth® transceiver may be defeated programmatically at any time.
 3. Item(s) sold separately. Refer to each product's spec sheet for complete information.
 4. Room scheduling mode requires the TSW-770 to be designated exclusively for room scheduling use, which precludes use of certain features and functions described in this spec sheet. Additionally, CollegeNET® 25Live® scheduling software and Ad Astra™ software do not support scheduling ad hoc meetings from the

touch screen. For design assistance, contact the Crestron True Blue support team at www.crestron.com/support.

5. Refer to the firmware release notes for a list of all scheduling apps that are supported by that firmware release.
6. Additional subscriptions and/or licenses may be required. Refer to each provider's website for details about the capabilities and requirements of its scheduling application and services. Third-party apps typically run on the TSW-770 as they do on a tablet device. The TSW-770 runs only one app, which is selected at setup. Only the apps approved and delivered by Crestron can run on the TSW-770.
7. A complete Zoom Rooms solution requires a mini PC or Mac computer running Zoom software, a Zoom Rooms subscription, plus additional peripherals and cables. Visit zoom.us/zoomrooms for more information about Zoom Rooms capabilities, hardware requirements, and subscription plans. For design assistance, contact the Crestron True Blue support team at www.crestron.com/support.
8. The TSW-770 provides an integrated, equivalent alternative to the standalone [PP-100-W](#) beacon. For more details, refer to the PP-100-W spec sheet. Bluetooth technology is used solely for proximity detection and does not transmit or receive any control, multimedia, or personal data. Crestron Bluetooth beacons are only visible to Bluetooth enabled devices that are specifically programmed and configured to work with them.
9. The TSW-UMB-70 is also compatible with older TSW-UMB-PMK series preconstruction mounting kits and TSW-BBI series back boxes, allowing the TSW-770 to be installed in place of a previous generation touch screen.

Touch Screen Display

Display Type	TFT active matrix color LCD
Size	7 in. (178 mm) diagonal
Aspect Ratio	16:10 WXGA
Resolution	1280 x 800 pixels
Brightness	350 nits (cd/m ²)
Contrast	850:1
Color Depth	24 bit, 16.7M colors
Illumination	Edgelit LED with auto brightness control
Viewing Angle	±80° horizontal, ±80° vertical
Touch Screen	Projected capacitive, 5-point multitouch capable

Buttons

Hard Keys	(6) Virtual buttons in collapsible universal tool bar, per-button show/hide, preconfigured with icons for Power, Home, Lights, Up, Down, and Microphone, optional custom programming via control system for additional functions
Reset	(1) Pin hole on rear panel for hardware reset

Graphics Engine

Crestron HTML5 and Smart Graphics® software technology, multilanguage web browser¹, multilanguage onscreen keyboard, screensaver, single scalable streaming video window, native room scheduling applications^{4,5,6}, native Sonos® app¹, native Zoom Rooms™ app⁷, native Crestron Home® OS app, setup and diagnostics via web browser, cloud, or onscreen UI

Room Scheduling Support

Crestron Scheduling App	Crestron Fusion® software, Microsoft Exchange Server® and Office 365® software, Google Calendar™ and G Suite™ software, CollegeNET® 25Live® software, and Ad Astra™ software (IBM® Notes® software is also supported through Crestron Fusion on-premises server only) ⁴
Third-Party Apps	Includes support for various third-party scheduling applications. ^{5,6}

Languages

Smart Graphics	Arabic, Chinese (Simplified), Chinese (Traditional), Czech, Danish, Dutch, English (UK), English (US), Finnish, French, German, Greek, Hebrew, Hungarian, Italian, Japanese, Korean, Norwegian, Polish, Portuguese, Portuguese (Brazilian), Romanian, Russian, Slovak, Spanish, Swedish, Thai
Onscreen Keyboard	Arabic, Chinese (Simplified), Croatian, Czech, Danish, Dutch, English (UK), English (US), Finnish, French (Canada), French (Switzerland), German, Hebrew, Hungarian, Italian, Japanese, Norwegian Bokmal, Polish, Portuguese, Russian, Serbian, Spanish, Swedish, Turkish
Voice Recognition ¹	Afrikaans (South Africa); Chinese, Mandarin (China, Simplified); Chinese, Mandarin (Hong Kong, Simplified); Chinese, Mandarin (Taiwan, Traditional); Chinese, Yue (Hong Kong, Traditional); Czech (Czech Republic); Dutch (Netherlands); English (Australia); English (Canada); English (Generic); English (India); English (New Zealand); English (South Africa); English (UK); English (US); French (France); German (Germany); isiZulu (South Africa); Italian (Italy); Japanese (Japan); Korean (South Korea); Polish (Poland); Portuguese (Brazil); Russian (Russia); Spanish (Spain); Turkish (Turkey)
Web Browser ¹	Arabic, Bulgarian, Catalan, Chinese, Croatian, Czech, Danish, Dutch, English, Filipino, Finnish, French, German, Greek, Hebrew, Hindi, Hungarian, Indonesian, Italian, Japanese, Korean, Latvian, Lithuanian, Norwegian Bokmal, Pashto, Persian, Polish, Portuguese, Romanian, Romansh, Russian, Serbian, Slovak, Slovenian, Spanish, Swedish, Thai, Turkish, Ukrainian, Vietnamese
Room Scheduling ⁴	Chinese (Simplified), Chinese (Traditional), Danish, Dutch (Netherlands), English (US), English (UK), French, German, Hebrew, Italian, Japanese, Korean, Norwegian, Portuguese (Brazil), Portuguese (Portugal), Russian, Spanish, Swedish

Memory

RAM	2 GB LPDDR3
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Storage	Firmware/Application: 16 GB eMMC pSLC
Maximum Project Size	600 MB

Wired Communications

Ethernet	100 Mbps, auto switching, auto negotiating, auto discovery, full/half duplex, TCP/IP, UDP/IP, CIP, DHCP, SSL, TLS, SSH, SFTP (SSH File Transfer Protocol), IEEE 802.1X, SNMP, IPv4 or IPv6, Active Directory® service authentication, HTTPS web browser setup, XiO Cloud® client, IEEE 802.3at compliant
USB	USB 2.0 host for room scheduling accessories

Wireless Communications

Transceiver	IEEE 802.11a/b/g/n/ac Wi-Fi (2.4 or 5 GHz 2-way RF), static IP or dynamic IP via DHCP
Security	64 and 128-bit WEP, WPA and WPA2-PSK with TKIP and AES
Range	Up to 50 ft (15 m), subject to site-specific conditions
Bluetooth® Hardware	Crestron Bluetooth beacon ^{2,8}

Streaming Decoder

Video Formats	H.265, H.264 (MPEG-4 part 10 AVC, MJPEG)
Audio Formats	AAC stereo
Bitrates	Up to 25 Mbps (20 Mbps maximum recommended)
Input Resolutions	Up to 1920x1080@30fps
Protocol	RTSP

Audio

Features	Built-in microphone and speakers, Rava® SIP Intercom, voice recognition ^{1,2}
Audio Feedback Formats	MP3

Connectors

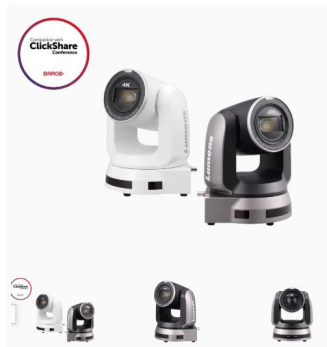
LAN PoE	(1) 8-pin RJ-45 connector, female, with 2 LED indicators; 100BASE-TX Ethernet port; PoE+ PD port; Green and yellow LEDs indicate Ethernet port status
USB	(2) USB Type A connectors, female; USB 2.0 host ports; For optional room scheduling accessories ³

NOTE: The touch screen supports the use of a single light bar or status indicator accessory. The [RFID-USB](#) card reader accessory can be connected to the second USB port.

Power

PoE (Power over Ethernet)	IEEE 802.3at Type 2 compliant PoE+ PD (Powered Device); Requests 15 W from an 802.3at Type 2 PSE with LLDP advanced power management;
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	Requests 30 W (PoE+ Class 4) from an 802.3at Type 2 PSE without LLDP; Requests 15.4 W (PoE Class 0) from an 802.3af (or 802.3at Type 1) PSE
Environmental	
Temperature	32 to 104°F (0 to 40°C)
Humidity	10% to 95% RH (noncondensing)
Heat Dissipation	44 BTU/hr
Construction	
Housing	Plastic, smooth black or white finish, edge-to-edge glass with black or white surround
Mounting	Surface mount over a 2 or 3-gang US electrical box, 2-gang European (DIN 49073) electrical box, or 2-gang UK (BS 4662) electrical box; Lectern mount over a 2 in. H x 3-3/4 in. W (51 mm H x 96 mm W) cutout; 1-3/8 in. (35 mm) minimum mounting depth; Wall mount, surface mount, and rack options available separately
Dimensions	
Height	4.17 in. (106 mm)
Width	6.80 in. (173 mm)
Depth	1.99 in. (51 mm)
<i>Dimensions do not include the mounting bracket or add-on accessories</i>	
Weight	
14.11 oz (400 g)	



The image shows the ClickShare VC-A71P camera, a white PTZ camera with a large lens and a black base. To its right is a smaller, black PTZ camera. Below these are three smaller images of other ClickShare products: a white PTZ camera, a black PTZ camera, and a black PTZ camera.

VC-A71P

4K 60fps IP PTZ Camera

Advanced UltraHD pan tilt zoom camera with 12G-SDI, IP, and HDMI outputs.

- 4K UHD 60fps and 1080P 60fps output
- 30x optical zoom, 63° maximum horizontal field of view
- 12G-SDI, HDMI, Ethernet, and USB 3.0 video output
- Triple stream HEVC/H.264 IP video output
- Supports RTSP / RTMP / RTMPS / MPEG-TS / SRT streaming protocols
- Maximum horizontal/vertical speed of rotation: 300° /sec
- Supports Power Over Ethernet (PoE++)
- Smart AF: AI-enabled autofocus system
- FreeD protocol for live VR/AR production
- 5 Year Warranty

• SPECS DETAILS

- *Sensor*
- 1/1.8" 9.17MP CMOS

- *Video Format*
- 2160p: 59.94 / 50 / 29.97 / 25
1080p: 59.94 / 50 / 29.97 / 25
1080i: 59.94 / 50
720p: 59.94 / 50 / 29.97 / 25
- *Video Output (HD) Interface*
- 12G-SDI / HDMI 2.0 / Ethernet / USB 3.0
- *Optical Zoom*
- 30x
- *Digital Zoom*
- 12x
- *Viewing Angle*
- 63° (H) 35.4° (V) 72.3° (D)
- *Aperture*
- F1.6 ~ F4.8
- *Focal Length*
- 6.5mm ~ 202mm
- *Shutter Speed*
- 1/1 ~ 1/10,000 sec
- *Minimum Object Distance*
- 1.5m (Wide/Tele)
- *Video S/N Ratio*
- > 50dB

- *Minimum Illumination*
 - 0.05 lux (F1.6, 50IRE, 30fps)
- *Focus System*
 - Auto / Manual / Smart AF
- *Gain Control*
 - Auto / Manual
- *White Balance*
 - Auto / Manual
- *Exposure Control*
 - Auto / Manual / Smart AE
- *IQ Sync*
 - Yes
- *WDR*
 - Yes
- *3D NR*
 - Yes
- *Image Flip*
 - Yes
- *Color Space*
 - Standard / BT.2020 / REC.709
- *AR/VR Systems*
 - FreeD

- *Tally Light*
- Yes
- *Panning Angle*
- +170° ~ -170°
- *Panning Speed*
- 300°/sec
- *Tilting Angle*
- +90° ~ -30°
- *Tilting Speed*
- 300°/sec
- *PoE*
- PoE++ (IEEE802.3bt)
- *Preset Positions*
- 256
- *Multiple Video Stream*
- HEVC 4K 59.94fps
H.264 1080p 59.94fps
H.264 640x360 29.97fps
- *HDMI / 12G-SDI*
- 2160p59.94

- *IP Stream*
- HEVC 4K 59.94fps
H.264 1080p 59.94fps
H.264 640x360 29.97fps
- *IP Compression*
- HEVC(H.265) / H.264
- *USB Output*
- H.264 4K30fps
MJPEG 1080p30
- *USB Compression*
- H.264 / MJPEG
- *IP Protocol*
- RTSP / RTMP / RTMPS / MPEG-TS / SRT
- *Audio Input*
- Line In / MIC In, Phone Jack 3.5mm x1
- *Audio Output*
- Ethernet / 12G-SDI / HDMI 2.0
- *Audio Compression Format*
- IP: G.711 / USB: PCM
- *Control Interface*
- RS-232 / RS-422 / Ethernet / USB 3.0/ Remote

- *Control Protocol*
- VISCA / VISCAIP / PELCO D / ONVIF
- *UVC*
- 1.1
- *UAC*
- Yes
- *DC In*
- 12V +/- 20%
- *Power Consumption*
- PoE: 27.5 W
DC In: 27 W
- *Weight*
- 6.6lbs (3 kg)
- *Dimensions*
- 9.2" x 7.4" x 7.4"
(232 x 188 x 189 mm)



ATW-1312

Specifications

Overall System

Operating Frequencies

2.4 GHz ISM band (2400 to 2483.5 MHz)

Frequency Response

20 Hz to 20 kHz

Depending on microphone type

Operating Range

60 m (200') *Open range env. with no interfering signals*

Total Harmonic Distortion

<0.05% typical

Operating Temperature Range

0° C to +40° C (32° F to 104° F) *Battery performance may be reduced at very*

Handheld Transmitter

RF Power Output

10 mW

Spurious Emissions

Following federal and national regulations

Battery Type

Two 1.5V AA

not included

Battery Life

>7 hours (alkaline)

Depending on battery type and use pattern

Dimensions

254.8 mm (10.03") long, 50.0 mm (1.97") diameter

Net Weight

280 grams (9.9 oz)

without batteries

Accessories Included

AT8456a Quiet-Flex™ stand clamp

Body Pack

RF Power Output

10 mW

Battery Life

>7 hours (alkaline)

Depending on battery type and use pattern

Battery Type

Two 1.5V AA

not included

Dimensions

70.2 mm (2.76") W x 107.0 mm (4.21") H x 24.9 mm (0.98") D

Input Connections	Four-pin Locking Connector Pin 1: GND, Pin 2: INST INPUT, Pin 3: MIC INPUT, Pin 4: DC BIAS +9V
Net Weight	100 grams (3.5 oz) <i>without batteries</i>
Spurious Emissions Receiver	Following federal and national regulations
Receiving System	Diversity (frequency/time/space)
Maximum Output Level	XLR, balanced: 0 dBV 1/4" (6.3 mm), unbalanced: +6 dBV
Power Supply	100-240V AC (50/60 Hz) to 12V DC 0.5A power supply switched mode exte
Operating Temperature Range	40° F (4° C) to 110° F (43° C)
Dimensions	209.8 mm (8.26") W x 44 mm (1.73") H x 169.3 mm (6.67") D
Weight	940 grams (33.2 oz)
Accessories Included	AC adapter, Link cable, Rack-mount adapters, Joining plate, Rubber feet
Output Connector	Remote Receiver Connector: RJ45 Link Connector: RJ12

EIKI

EK-308U/EK-309W

WUXGA/WXGA High Performance Portable LCD Projector



Achieve Higher Brightness with compact body

Flexible Installation

The useful function such as wide range of Horizontal and Vertical Lens Shift, Keystone correction, Corner Correction, and Curved Correction (for EK-309W only) offer you the flexible installation.

<Horizontal and Vertical Lens Shift>



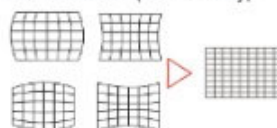
Horizontal: +/- 9%
Vertical: +/- 45%



<Corner Correction>



<Curved Correction (EK-309W only)>



Easy Maintenance

The maintenance is easier by Top-accessed lamp and Side-accessed Filter. Also, since electrostatic filter is employed for higher filtration efficiency, projector can be protected from dust more effectively.



Recommended Application



- Classrooms
- Lecture Hall
- Conference Rooms
- Museum

EK-308U and EK-309W are suitable from small sized to medium sized rooms. Since they have high visibility by high brightness, images and characters are clearly projected even in bright rooms.

6,000 Lumens*
WUXGA
(1920 x 1200)

6,000 Lumens*
WXGA
(1280 x 800)

EK-308U and EK-309W are the highest brightness in EIKI's portable projectors. These projectors have fulfilling input terminals even with compact body and they can provide brighter and clear images. Flexible installation capabilities enable to install the place where it is hard to install.

Key Features

- High Contrast Ratio 10,000 : 1 with IRIS on in Eco mode
- Optical Zoom 1.6 x
- Fulfilling I/O terminals
 - HDMI x 2
 - VGA x 2
 - USB-A x 1
 - USB-B x 1
- Flexible installation
 - Lens Shift
 - H: +/- 9%
 - V: +/- 45%
 - Keystone Correction
 - H: +/- 15°
 - V: +/- 30°
 - Corner Correction
 - Curved Correction (EK-309W only)
- Quick Power OFF
- Built-in 10-Watt Audio Speaker



* Center Lumens

EK-30BU/EK-309W

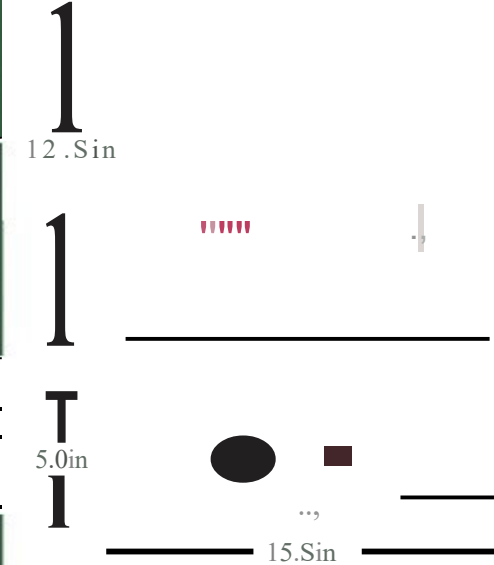
WUXGA/WXGA High Performance Portable LCD Projector

EIKI

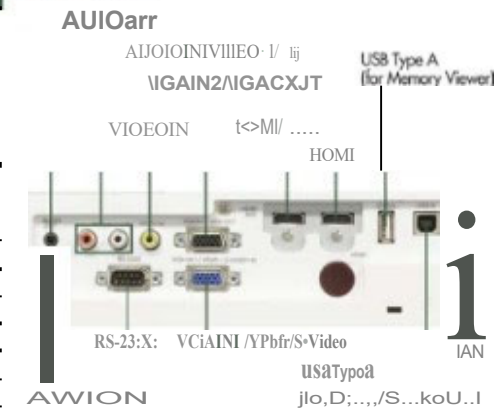
Specifications

Model (EAN)	EK-30BU (457119467 942 7)	EK-309W (457119467 944 1)
Display Type	0.64" 3LCD	
Resolution	WUXGA (1920 x 1200)	WXGA (1280 x 800)
Aspect Ratio	16:10	
Brightness	6,000lm*	
Contrast Ratio	10,000:1 (w/IRIS/NIP-Eco mode)	
Projection Light Source	300W x 1	
Light Source Life (Eco / Normal)	4,000 / 3,000 hours	
Image Diagonal	30" / 300"	
Lens (F Value / Focal length)	f = 1.6-1.9; FL = 0.602-0.97 in (315.31-24.64 mm)	
Zoom Ratio	Manual 1.4x	
Throw Distance	Z1: 37.5ft 10.68m	
Throw Ratio	1.07-1.75:1	
Lens Shift	V: +/- fFL, H: +/- 9% (Men. opt.)	
Keystone Correction	V: +/- 30deg, H: +/- 15deg (Men. opt.)	
Projection Elevation Adjustment	Up to 10 degrees	
Scanning Frequency	H Sync: 15 - 100kHz, V sync: 48 - 85 Hz	
Dot Clock	150 MHz	
Input Signals - Computer	WUXGA (1920 x 1200) - VGA (640 x 480)	
Input Signals - Video	1080i/p, 720p, 576i/p, 480i/p	
Terminal	HDMI In	HDMI x 2 (1 HDMI supports MHL)
	VGA In	0-Sw 15x2
	Y/P/B (Component)	0-Sw 15x2
	Audio In	0-Sw 15x2
	USB	USB Type A x 1 (Memory viewer) USB Type B x 1 (Display / Service Use)
	Monitor Out (VGA Out)	0-Sw 15x2 (Shared with VGA In)
	Audio Out	0-Sw 15x2 (Shared with VGA In)
	LAN	0-Sw 15x2 (Shared with VGA In)
	RS-232C	0-Sw 15x2 (Shared with VGA In)
	Built-in Speaker	Mono 10.0W x 1
Fan Noise (Eco / Normal)	35.9 dB / 40.9 dB	
Dimensions (W x H x D)	16.5" x 9.5" x 2.5" (395K128x318mm)	
Weight	9.9 lb (4.5 kg)	
Power Requirements	AC 100 - 240 V, 50/60 Hz	
Power Consumption (Normal / LAN Control Standby / Standby)	110W / 1.5W / 0.5W	
Thermal Dissipation	1.5W	
Standard Accessories	VGA Cable, Remote Control, User Manual	
	EIKI Industrial Co., Ltd.	

Dimensions



Terminals



Optional Accessories

- Remote Control (P/N: 220t0013)
- Remote Control (P/N: 633A00U)

EIKI INDUSTRIAL CO., LTD.

6-23 Teramoto, Itami-Shi, Hyogo, Japan

Tel: 81-78-933-3650, Web: www.eiki.co.jp

Crimson AV M90XL Fully Loaded
Heavy-Duty Mobile Cart



- Fits 50" - 90" TVs
- Weight capacity up to 300 lbs.
- Tilts +15°/-5°

Set the height to any desired position

Perfect for 50"-90" displays

The Crimson AV M90XL Fully Loaded Heavy Duty Mobile Cart includes every shelf option, including two side shelves as well as the back panel cover system for professional, aesthetically pleasing installation. Also included are the top shelf and heavy duty all steel shelf which can be mounted either in the forward (in front of the display) or back position (behind the display). The height can be set to any desired position.



Heavy-duty construction

The M90XL features through-column cord management, cord wrap brackets capable of holding 50 feet of heavy gauge extension cable and removable handles for safely transporting the cart. The M90XL mobile cart is constructed of heavy duty high-grade steel with epoxy powder coating and heavy duty casters.

Manufacturer Specs

Model: M90XL Specifications	
Description	Fully loaded heavy duty mobile cart with two side shelves, top shelf, front/back shelf, back panel and cover
TV size range	50" - 90"
Weight capacity	300lb (136kg) mount
Max mounting pattern	800x500mm
VESA mounting patterns	300x300mm, 400x200mm, 400x300mm, 400x400mm, 600x200mm, 600x400mm, 800x400mm
Tilt	+15°/-5°
Maximum TV Height	70.4" (179 cm) (middle of display)
Security feature	one-touch lock and key system
Construction	high-grade cold rolled steel and anodized aluminum
Product finish	scratch resistant epoxy powder coat
Product weight	163.1lb (74kg)
Shipping weight	172 lbs.
Package specifications	multiple boxes
Color	black
Warranty	10-years

Tech Specs

General Attributes	
Warranty	10 YEARS
Product Weight	163.1 LBS
Shipping Weight	172 LBS
Freight Class	100
Product Height	87.26 IN
Product Length	4.22 IN
Product Width	62.61 IN
Shipping Height	87.26 IN
Shoosine Leneth	4.22 IN



DEPARTMENT OF THE AIR FORCE
WASHINGTON, DC

OFFICE OF THE SECRETARY

18 April 2022

MEMORANDUM FOR ALMAJCOM-FLDCOM-FOA-DRU-DISTRIBUTION C

FROM: SAF/CNS
1800 Air Force Pentagon
Washington, D.C., 20330-1665

SUBJECT: Department of the Air Force (DAF) Laptop and Desktop Purchasing Guidelines

1. Effective immediately, the following minimum computer configuration requirements will be used for all newly purchased Department of the Air Force (DAF) laptop and desktop computers.

Spec	Requirement
Processor	1GHz or faster with 2 or more cores on a compatible 64-bit processor or system on a chip
RAM	32GB
Storage	512GB or larger solid state drive (SSD)
System firmware	UEFI, Secure Boot-capable
TPM	Trusted Platform Module (TPM) version 2.0
Graphics card	Compatible with DirectX 12 or later with WDDM 2.0 driver
Display	HD (720p) display greater than 9 inches diagonally, 8 bits per color channel

2. Organizations must utilize the CCS-3 purchasing program as the primary means of acquiring client computing systems and monitors. Details are located on the CCS-3 SharePoint site ([https://usaf.dps.mil/sites/aficc/afcc/AFICC/771ESS/SitePages/Client-Computing-Solutions-\(CCS-3\).aspx](https://usaf.dps.mil/sites/aficc/afcc/AFICC/771ESS/SitePages/Client-Computing-Solutions-(CCS-3).aspx)). In the event that a mission requirement cannot be met by CCS-3, organizations must obtain a waiver from the MAJCOM A6 using the waiver request template found at [https://usaf.dps.mil/sites/aficc/afcc/AFICC/771ESS/SitePages/Client-Computing-Solutions-\(CCS-3\).aspx](https://usaf.dps.mil/sites/aficc/afcc/AFICC/771ESS/SitePages/Client-Computing-Solutions-(CCS-3).aspx) under "Waiver Request."

3. The Base Equipment Control Officer (BECO) will ensure the above standards are met prior to all purchases.

4. This policy will be integrated into applicable DAF policy and distributed to all DAF organizations responsible for contracting.

5. For further information please contact the 771st ESS Enterprise Hardware Commodity Acquisition Programs (Formerly ITCC) Customer Support at IT.Contract.Flight@us.af.mil.

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VENICE M. GOODWINE, SES, DAF
Director, Enterprise Information Technology