

Kúpna zmluva

uzavretá podľa § 409 zákona č. 513/1991 Z. z. v znení neskorších predpisov (ďalej len „Obchodný zákonník“)
a v súlade so zákonom č. 343/2015 Z. z. o verejnom obstarávaní a o zmene a doplnení niektorých zákonov v znení
neskorších predpisov (ďalej len „zákon o verejnom obstarávaní alebo ZVO“)

Článok I.

Zmluvné strany

1.1. Kupujúci:	Univerzita Komenského v Bratislave
Sídlo:	Šafárikovo nám. 6, 814 99 Bratislava
Korešpondenčná adresa:	Šafárikovo nám. 6, P. O. Box 440, 814 99 Bratislava 1
Štatutárny orgán:	prof. JUDr. Marek Števček, PhD., rektor
Osoba oprávnená na podpis zmluvy:	Ing. Ingrid Kútina Želonková, PhD., kvestorka
IČO:	00 397 865
DIČ:	2020845332

(ďalej len „kupujúci“)

1.2. Predávajúci:	MediaTech Central Europe, a. s.
Sídlo:	Drieňová 34, 821 02 Bratislava
Zastúpený:	Ing. Bohumil Tonkovič, predseda predstavenstva
IČO:	35772581
DIČ:	2021488568
IČ DPH:	SK2021488568
Osoby oprávnené konať:	
- vo veciach zmluvy:	Ing. Bohumil Tonkovič, predseda predstavenstva
- vo veciach realizácie zmluvy:	Ing. Bohumil Tonkovič
Bankové spojenie:	
IBAN:	
Zapísaný v Obch. registri:	OS Bratislava I, Vložka č.: 5405/B, Oddiel: Sa
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(ďalej len „predávajúci“)

Článok II. Úvodné ustanovenia

- 2.1. Podkladom pre uzavretie tejto zmluvy je výsledok verejného obstarávania zákazky „Systém riadenia a ovládania prenosu video-míttingov - 36“ uskutočnenej v rámci dynamického nákupného systému „IKT pre Univerzitu Komenského v Bratislave“ .
- 2.2. Touto zmluvou sa stanovuje právny režim kúpy a predaja Systému riadenia a ovládania prenosu video-míttingov - otvoreného systému riadenia a ovládania digitálnych technológií pre zabezpečenie prenosu video konferenčných míttingov a vzdelávacích kurzov prostredníctvom MS Teams, a to podľa technickej špecifikácie uvedenej v Prílohe č. 1 Opis predmetu zmluvy a podľa Prílohy č. 2 Cenová ponuka. Príloha č. 1 a Príloha č. 2 sú neoddeliteľnou súčasťou tejto zmluvy.

Článok III. Predmet plnenia zmluvy

- 3.1. Predmetom tejto zmluvy je dodávka tovaru predávajúcim uvedeného v Prílohe č. 1 Opis predmetu zmluvy a podľa Prílohy č. 2 Cenová ponuka, na základe objednávok kupujúceho za podmienok uvedených v tejto zmluve a záväzok kupujúceho prevziať tovar a zaplatiť za neho predávajúcemu dohodnutú cenu podľa platobných podmienok dohodnutých v tejto zmluve.
- 3.2. Predávajúci sa zaväzuje, že kupujúcemu dodá tovar špecifikovaný v Prílohe č. 1 tejto zmluvy za cenu uvedenú v Prílohe č. 2 tejto zmluvy v súlade s príslušnými legislatívnymi predpismi a zároveň kupujúcemu umožní nadobúdať vlastnícke právo k tomuto tovaru.
- 3.3. Predávajúci sa zaväzuje dodať tovar podľa bodu 3.2 vrátane príslušnej kabeláže, inštalácie, potrebnej konfigurácie, ako aj integrácie s existujúcimi zariadeniami Kupujúceho, parametrizácie a dopravy namiesto dodania predmetu zmluvy. Dodávaný systém musí byť otvorený pre budúce zapojenie ďalších zariadení pre snímanie obrazu a zvuku.
- 3.4. Predávajúci sa zaväzuje:
 - a) dodávať tovar na základe objednávky kupujúceho,
 - b) potvrdiť objednávku do dvoch pracovných dní od jej doručenia kupujúcim podľa bodu 5.1 a dodať tovar do najneskôr do 30 dní od doručenia objednávky,
 - c) dodať tovar výlučne podľa špecifikácie uvedenej v Prílohe č. 1 zmluvy.

Článok IV. Cena tovaru

- 4.1. Cena za predmet plnenia zmluvy je stanovená v zmysle zákona č. 18/1996 Z. z. o cenách v znení neskorších predpisov (ďalej len „zákon o cenách“) a vyhlášky Ministerstva financií SR č. 87/1996 Z. z., ktorou sa vykonáva zákon o cenách v znení neskorších predpisov a v súlade s cenovou ponukou uvedenou v Prílohe č. 2 tejto zmluvy.

- 4.2. Zmluvná cena pokrýva všetky ekonomicky oprávnené náklady predávajúceho vynaložené v súvislosti s dodávkou predmetu plnenia zmluvy, napr. prepravné obaly na prepravu tovaru, doprava na miesto dodania prepravnými prostriedkami predávajúceho a v súlade s príslušnými legislatívnymi predpismi, vyložením tovaru na konkrétne miesto. V cene sú zahrnuté náklady spojené s výmenou reklamovaného tovaru počas záručnej doby.
- 4.3. Zmluvná cena za predmet zákazky je cenou konečnou, t. j. nebude sa navyšovať o ďalšie náklady.
- 4.4. Zmluvné strany dohodli cenu predmetu zmluvy tak ako je uvedená v Prílohe č. 2 tejto zmluvy:

Cena bez DPH:	7 845,00 Eur
DPH 20%:	1 569,00 Eur
Cena spolu s DPH:	9 414,00 Eur

Článok V.

Podmienky dodania a preberania tovaru

- 5.1. Predávajúci je povinný dodávať predmet zmluvy na základe e-mailovej objednávky kupujúceho. Objednávku posielá predávajúcemu zodpovedná osoba kupujúceho uvedená v objednávke.
- 5.2. Dodávka tovaru bude realizovaná dopravou na náklady predávajúceho, s vyložením na mieste určenom kupujúcim v súlade s článkom VI. ods. 1 tejto zmluvy.
- 5.3. Dodávka požadovaného tovaru sa uskutoční v čase dohodnutom v objednávke, najneskôr do 30 dní od doručenia objednávky. Tovar za kupujúceho preberá zodpovedná osoba uvedená v objednávke.
- 5.4. Tovar sa považuje za dodaný po podpísaní dodacieho listu zástupcami zmluvných strán s uvedením špecifikácie dodaného tovaru, dátumom, pečiatkou.
- 5.5. Kupujúci je pri prevzatí predmetu tejto zmluvy povinný prekontrolovať jeho úplnosť, kompletnosť, balenie a svojím podpisom na dodacom liste túto skutočnosť potvrdiť.
- 5.6. Kupujúci je oprávnený odmietnuť dodávku predmetu tejto zmluvy v prípade, ak táto bola dodaná po lehote na dodanie tovaru určenej zmluvou alebo objednávkou, alebo ak má viditeľné vady (najmä poškodené obaly), alebo ak nebolo dodržané objednané množstvo a druh tovaru alebo vlastností a špecifikácia uvedená v Prílohe č. 1 tejto zmluvy. V takomto prípade sa bude postupovať akoby tovar nebol dodaný a kupujúci je oprávnený odstúpiť od zmluvy.

Článok VI.

Miesto dodania a vyloženia tovaru a lehota dodania tovaru

- 6.1. Miesto dodania a vyloženia tovaru je Univerzita Komenského v Bratislave, Prírodovedecká fakulta, Katedra didaktiky prírodných vied, psychológie a pedagogiky, Ilkovičova 6, Bratislava.

- 6.2. Predávajúci sa zaväzuje dodať predmet zmluvy špecifikovaný v Prílohe č. 1 v súlade s článkom III ods. 2 tejto zmluvy najneskôr do 30 dní od doručenia objednávky.

Článok VII. Platobné podmienky

- 7.1. Kupujúci sa zaväzuje za riadne a včas dodaný tovar zaplatiť predávajúcemu kúpnu cenu podľa Prílohy č. 2 tejto zmluvy na základe faktúry vystavenej predávajúcim po dodaní tovaru podľa článku V. tejto zmluvy. Kupujúci neposkytne predávajúcemu preddavok na zrealizovanie predmetu plnenia zmluvy.
- 7.2. Faktúra bude obsahovať náležitosti podľa zákona č. 222/2004 Z. z. o dani z pridanej hodnoty v znení neskorších predpisov. Neoddeliteľnou súčasťou faktúry bude originál dodacieho listu.
- 7.3. Predávajúci je povinný uvádzať vo faktúrach tovar, jeho výrobcu tak, ako je uvedené v Prílohe č. 1 a v Prílohe č. 2 tejto zmluvy.
- 7.4. Lehota splatnosti faktúry je 30 dní odo dňa prevzatia a odsúhlasenia faktúry kupujúcim. Ak predložená faktúra nebude spĺňať náležitosti podľa tohto článku alebo nebude vystavená v súlade so zmluvou, kupujúci ju vráti v lehote splatnosti predávajúcemu na dopracovanie. Opravená faktúra je splatná do 30 dní odo dňa jej prevzatia a odsúhlasenia kupujúcim. Faktúry budú uhrádzané výhradne prevodným príkazom.

Článok VIII. Záruky na tovary

- 8.1. Zmluvné strany sa dohodli, že záručná doba na predmet zmluvy - dodaný tovar je 24 mesiacov odo dňa dodania tovaru.
- 8.2. Predávajúci zodpovedá za to, že tovar bude riadne dodaný v súlade s touto zmluvou, bude mať vlastnosti dohodnuté v tejto zmluve, bude v súlade s právnymi predpismi a bude spĺňať všetky náležitosti stanovené platnou legislatívou.
- 8.3. Predávajúci zodpovedá za kvalitu dodávaných tovarov, vrátane skrytých väd tovaru počas celého trvania záručnej doby.
- 8.4. Kupujúci je oprávnený reklamovať vady dodaného tovaru e-mailom. Súčasťou môže byť aj fotodokumentácia reklamovaného tovaru. Náklady na dopravu súvisiacu s reklamovaným tovarom znáša predávajúci v plnom rozsahu.
- 8.5. Vady zjavné, kvalitatívne alebo množstevné, zistené pri prevzatí tovaru bude kupujúci reklamovať najneskôr do 5 pracovných dní odo dňa dodania tovaru. Ostatné vady je kupujúci povinný reklamovať okamžite po zistení vady, najneskôr však do skončenia záručnej doby.
- 8.6. Zmluvné strany sa dohodli, že v prípade zistenia vady počas záručnej doby dodávateľ začne s odstraňovaním vady a riešením servisnej požiadavky objednávateľa najneskôr v nasledujúci pracovný deň.
- 8.7. Kupujúci má právo v prípade zistenia akýchkoľvek väd dodaného tovaru na:

- a) výmenu vadného tovaru za tovar nový, bezchybný, najneskôr do 3 dní od okamihu uplatnenia zodpovednosti za vady,
 - b) odstúpenie od zmluvy v prípade nesplnenia povinnosti predávajúceho vymeniť vadný tovar za bezchybný v stanovenej lehote alebo v prípade, ak objednávateľ požadoval v rámci jedného kalendárneho mesiaca reklamáciu viac ako trikrát.
- 8.8. Kupujúci bude akceptovať iba faktúru za dodávku bezchybného predmetu zmluvy, t. j. v súlade s dodacím listom.

Článok IX.

Sankcie

- 9.1. V prípade, že predávajúci bude v omeškaní s plnením predmetu tejto zmluvy, teda s dodaním tovaru v lehote uvedenej v čl. V. ods. 3, kupujúci si môže uplatniť zmluvnú pokutu vo výške 0,1 % za každý začatý deň omeškania z ceny nedodaného tovaru, a to až do doby dodania tovaru. Týmto však nie je dotknutý nárok na náhradu škody.
- 9.2. V prípade, že predávajúci bude v omeškaní s dodaním reklamovaného tovaru v lehote uvedenej v čl. VIII. ods. 5 písm. a), kupujúci si môže uplatniť zmluvnú pokutu vo výške 0,1 % za každý začatý deň omeškania z ceny nedodaného tovaru, a to až do doby dodania tovaru. Týmto však nie je dotknutý nárok na náhradu škody.
- 9.3. Ak predávajúci nedodrží jednotkové ceny uvedené v Prílohe č. 2 tejto zmluvy, kupujúci je oprávnený si uplatniť zmluvnú pokutu vo výške 100 € za každú jednu nesprávne vyfakturovanú položku.
- 9.4. V prípade, že predávajúci nedodrží vlastnosti tovaru uvedené v Prílohe č. 1 zmluvy alebo nedodrží niektorú z požiadaviek na tovar uvedenú v čl. III ods. 3 zmluvy, je kupujúci oprávnený uplatniť zmluvnú pokutu vo výške 0,1 % z hodnoty vadného plnenia za každé jedno porušenie.
- 9.5. Ak nebude vykonaná úhrada predávajúcemu v zmysle platobných podmienok tejto kúpnej zmluvy, môže si predávajúci uplatniť za každý deň omeškania úrok z omeškania v zákonnej výške z hodnoty neuhradenej faktúry.
- 9.6. V prípade, ak zmluvná strana poruší zmluvu podstatným spôsobom podľa čl. X. ods. 3, je zmluvná strana, okrem odstúpenia od zmluvy, oprávnená uplatniť si zmluvnú pokutu vo výške 5% z celkovej zmluvnej ceny.
- 9.7. V prípade, ak zmluvná strana poruší zmluvu iným ako podstatným spôsobom a takéto porušenie nenapraví ani v dodatočnej primeranej lehote určenej na nápravu, je druhá zmluvná strana, okrem odstúpenia od zmluvy, oprávnená uplatniť si pokutu vo výške 5% z celkovej zmluvnej ceny.
- 9.8. Zmluvné pokuty sú splatné do 14 dní odo dňa doručenia výzvy na ich uhradenie. Kupujúci je však oprávnený aj započítať akúkoľvek svoju i nesplatnú pohľadávku, ktorú má voči predávajúcemu, s pohľadávkou, i nesplatnou, ktorá vznikne z tejto zmluvy predávajúcemu voči kupujúcemu. Zápočet pohľadávok môže kupujúci uplatniť pri úhrade faktúry predávajúceho.

9.9. Zaplatením zmluvnej pokuty nie je dotknutý nárok kupujúceho požadovať náhradu škody.

Článok X.

Právo odstúpenia od zmluvy

10.1. Zmluvu je možné ukončiť dohodou zmluvných strán k určitému dátumu alebo odstúpením od zmluvy.

10.2. Odstúpenie od zmluvy je možné:

- a) pri podstatnom porušení zmluvy druhou zmluvnou stranou, alebo keď sa pre druhú zmluvnú stranu stalo splnenie podstatných zmluvných povinností úplne nemožným (vis maior), napr. v prípade poistnej udalosti, živeľnej udalosti,
- b) ak predávajúci poruší zmluvu iným ako podstatným spôsobom a takéto porušenie nenapraví ani v dodatočnej primeranej lehote na nápravu určenej kupujúcim.

10.3. Za podstatné porušenie zmluvy na účely odstúpenia od tejto zmluvy sa považuje najmä:

- a) dodanie tovaru za iné ako jednotkové ceny uvedené v Prílohe č. 2 zmluvy,
- b) ak predmet plnenia zmluvy bude fakturovaný v rozpore s dohodnutými podmienkami v zmluve alebo bude opakovane fakturovaný,
- c) neschopnosť predávajúceho dodať predmet zmluvy za jednotkové ceny uvedené v Prílohe č. 2 zmluvy,
- d) omeškanie predávajúceho s dodávkou tovaru o viac ako 2 pracovné dni,
- e) omeškanie predávajúceho s dodaním reklamovaného tovaru o viac ako 2 pracovné dni,
- f) omeškanie kupujúceho s úhradou faktúry o viac ako 15 dní,
- g) omeškanie zmluvnej strany s úhradou sankcie o viac ako 15 dní,
- h) predávajúci poskytne kupujúcemu predmet zmluvy takým spôsobom, ktorý je v rozpore s touto zmluvou (napr. nebolo dodržané objednané množstvo a druh tovaru alebo vlastnosti a špecifikácia uvedená v Prílohe č. 1 tejto zmluvy, opätovné dodanie nekvalitného tovaru, tovaru so zjavnými vadami alebo tovaru nespĺňajúceho kritéria podľa čl. III. ods. 3 v prípade, že kupujúci na nedostatky predávajúci a aspoň raz písomne alebo elektronicky, prostredníctvom emailu upozornil),
- i) ak predávajúci alebo kupujúci vstúpi do likvidácie, na jeho majetok bude vyhlásený konkurz, konkurzné konanie bolo zastavené pre nedostatok majetku, bude začatá reštrukturalizácia, bude zahájené exekučné konanie.

10.4. Zmluva zaniká dňom doručenia písomného oznámenia o odstúpení od zmluvy druhej zmluvnej strane.

10.5. Odstúpením od zmluvy nie je dotknutý nárok na náhradu škody vzniknutej porušením zmluvy a nárok na zaplatenie zmluvnej pokuty.

Článok XI.
Zmena zmluvy

- 11.1. Zmluvné strany sa dohodli, že túto zmluvu je možné meniť v súlade s § 18 ods. 1 písm. a) zákona o verejnom obstarávaní jednostranne na základe písomného oznámenia zo strany kupujúceho za podmienok dohodnutých v tomto článku.
- 11.2. Zmenou zmluvy v zmysle tohto Článku nemôže dôjsť k zmene ceny tovaru uvedenej v Prílohe č. 2.

Článok XII.
Záverečné ustanovenia

- 12.1. Právne vzťahy oboch zmluvných strán neupravené touto zmluvou sa riadia príslušnými ustanoveniami Obchodného zákonníka a ostatnými právnymi predpismi SR.
- 12.2. Táto zmluva nadobúda platnosť dňom jej podpisu obidvoma zmluvnými stranami a účinnosť v deň nasledujúci po dni jej zverejnenia v Centrálnom registri zmlúv vedenom Úradom vlády SR.
- 12.3. Predávajúci berie na vedomie zverejnenie tejto zmluvy v celom rozsahu v Centrálnom registri zmlúv vedenom Úradom vlády SR.
- 12.4. Zmluva je vyhotovená v štyroch rovnopisoch, pričom kupujúci aj predávajúci dostanú po dvoch rovnopisoch.
- 12.5. Zmluvné strany prehlasujú, že zmluvu pred jej podpisom prečítali, jej obsahu porozumeli a s ním súhlasili, čo potvrdzujú svojimi podpismi.

Príloha č. 1: Opis predmetu zmluvy

Príloha č. 2: Cenová ponuka

V Bratislave dňa

V Bratislave dňa

za Kupujúceho :

za Predávajúceho:

.....
Ing. Ingrid Kútina Želonková, PhD.
kvestorka
Univerzita Komenského v Bratislave

.....
Ing. Bohumil Tonkovič
predseda predstavenstva
MediaTech Central Europe, a.s.

Panasonic

BUSINESS

AW-HE38HW/HK [HDMI Model]

HD Integrated PTZ Camera

For indoor use



AW-HE38HW

Features 22x optical zoom lens
and support for PoE+*¹
for outstanding operability
and installation flexibility



AW-HE38HK

*1: Abbreviation of Power over Ethernet Plus.



Full HD camera with integrated pan-tilt for lectures, meetings and a wide variety of applications.

The integrated full HD camera AW-HE38HW/HK performs in a wide variety of onsite shooting applications that require high-quality video, such as conferences, lecture capture and other events, thanks to its high-performance zoom, wide angle of view and outstanding color reproducibility.

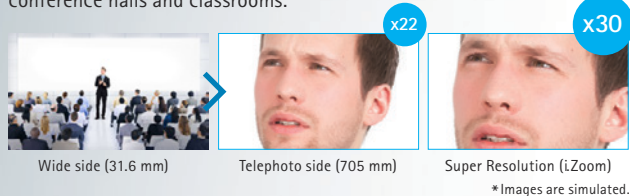
In addition to IP video transmission, support for PoE+*1 enables power to be supplied via a LAN cable*2. The result is installation flexibility. It also supports HD-IP video output, output of video and audio via USB, and SD card recording.

Developed 1/2.3-type MOS Sensor

Equipped with a developed 1/2.3-type MOS sensor and DSP (Digital Signal Processor) for high sensitivity and high resolution.

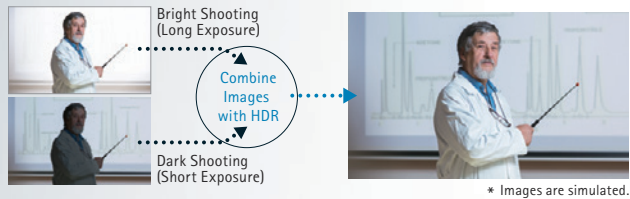
High Performance Optical 22x Zoom Lens/ Super Resolution 30x Zoom

In addition to a 22x optical zoom, the AW-HE38HW/HK can zoom up to 30x while maintaining high resolution thanks to Super Resolution technology. It also features a 16x digital zoom*3 and a 1.4x digital extender, which enables the AW-HE38HW/HK to shoot in large conference halls and classrooms.



Equipped with High Dynamic Range (HDR) Mode

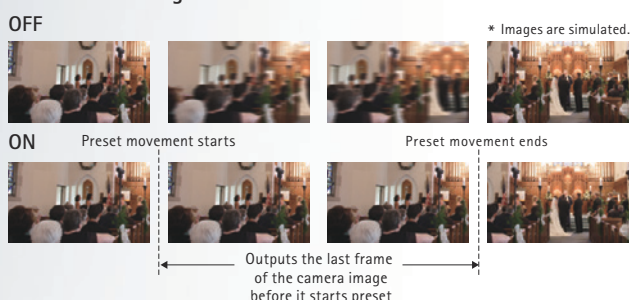
In addition to conventional Dynamic Range Stretch (DRS) and Digital Noise Reduction (DNR), the AW-HE38HW/HK is newly equipped with High Dynamic Range (HDR) mode. When shooting and synthesizing two images with differing exposure times, the AW-HE38HW/HK can create video with high visibility that corrects for halation and black defects even under backlit conditions.



Outputs Still Image During Preset Movements; Supports One-Camera Operations

The new Freeze During Preset function enables to freeze the video during preset playback. The immediately preceding still image is output during preset movements so that the swiveling movement is not displayed, making operations possible with one camera.

With Freeze During Preset function OFF and ON



Audio Input Function

The AW-HE38HW/HK also supports audio input, embedding and encoding. Audio output to IP is also supported. The ALC (Audio Automatic Level Control) in the original AW-HE38HW/HK can be switched ON/OFF and an equalizer function can be used. By reducing low-frequency sound from air conditioners, projectors, and other devices, it is possible to emphasize and increase the clarity of the spoken words.

Supporting PoE+*1 for Lower Installation Costs

By connecting network devices that support the IEEE802.3at PoE+ standard, power can be supplied via LAN cable. Since it is not necessary to install a power supply or even a local AC outlet, installation costs can be significantly reduced.

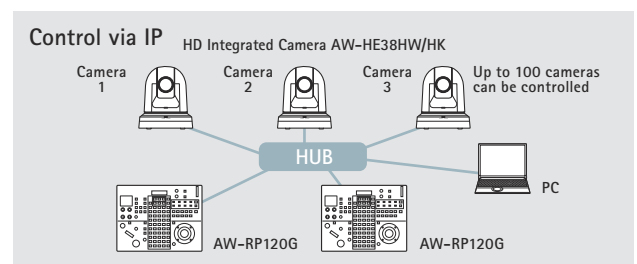
Equipped with a JPEG Image Saving Function*

The equipped JPEG Image Saving Function enables up to 99 still images (JPEGs) to be captured from video and saved to the microSD card. These images can easily be remotely saved, played back and deleted from a PC web browser connected via a LAN cable.

*A version software update may be required for use.

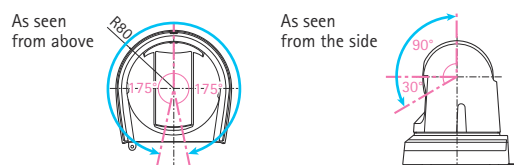
Flexible IP Control Architecture Simplifies System Design and Operation*4

Up to 100 x AW-HE38HW/HK cameras can be controlled via IP from a single AW-RP120G/RP50 or PC. An AW-HE38HW/HK can also be simultaneously controlled by up to five AW-RP120G/RP50's via IP.



Exceptional Pan-tilt Performance for Smooth Shooting Over a Wide Area*5

The pan range of $\pm 175^\circ$ and the tilt range of -30° to $+90^\circ$ cover a wide shooting area*5. Pan and tilt operate at a maximum speed of 90°/second and respond quickly to remote control operation. They operate quietly at a sound level of NC35 or lower.

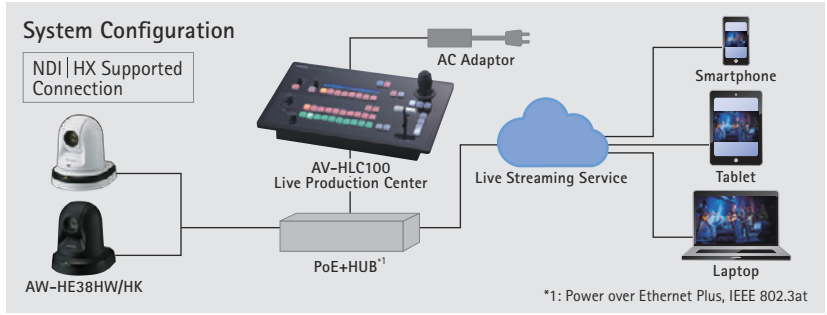


*1: Abbreviation of Power over Ethernet Plus. *2: The software for the AW-HE38HW/HK may need to be updated depending on the existing software version. For details, see the Panasonic website (<https://pro-av.panasonic.net/>). *3: Picture quality is lower with the digital zoom. *4: Controller upgrade required. For details, please refer to the "service and support" section on the Panasonic website (<https://pro-av.panasonic.net/>). *5: Depending on the position of the pan and tilt, the unit itself may be reflected in the image.

NDI|HX Compatibility for Excellent Video Streaming Quality

The AW-HE38HW/HK can be upgraded to an NDI|HX compatible model if purchasing a license from the NewTek website (<https://www.newtek.com/ndi/>). Highly efficient NDI|HX compatibility enables excellent broadcast streaming by encoding and transmitting high-quality video in real time. This technology eliminates the need for IP decoders, allowing input to be sent directly to the switcher.

* Contact your local Panasonic vendor for further information.



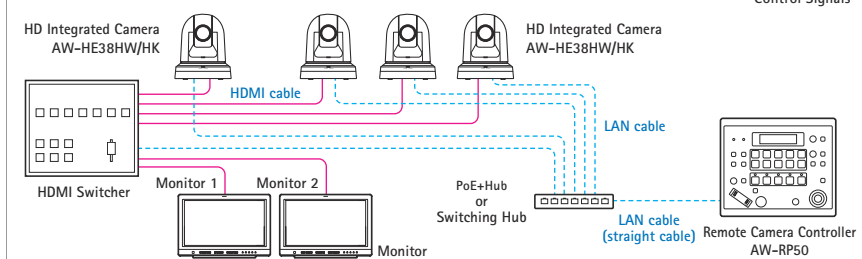
Specifications

As of February, 2018

GENERAL		FUNCTIONS AND PERFORMANCE		
Power requirements	DC 12 V (Supplied AC adaptor) DC 42 V to 57 V (PoE+ power supply)	Output format	HD 1080:59.94p/50p 1080:59.94i/50i 1080:29.97p/25p 1080:29.97PsF/25PSF 720:59.94p/50p	
Current consumption	1.2 A (Supplied AC adaptor) 0.4 A (PoE+ power supply)	Synchronization system	Internal synchronization	
Ambient operating temperature	0 °C to 40 °C (32 °F to 104 °F)	[USB connection]	* This may vary depending on the operating environment.	
Storage temperature	-20 °C to 50 °C (-4 °F to 122 °F)	Video output	USB Video Class Ver1.0	
Allowable humidity ranges	20 % to 90 % (no condensation)	Video compression format	Motion JPEG	
Mass	Approx. 1.5 kg (3.30 lb)	Resolution	1920 x 1080, 1280 x 720, 640 x 360	
Dimensions (W x H x D)	160 mm x 186 mm x 166 mm (6-5/16 inches x 7-41/128 inches x 6-17/32 inches) [excluding protrusions, direct ceiling mount bracket]	Frame rate	max 30 fps (System frequency 59.94 Hz) max 25 fps (System frequency 50 Hz)	
Finish	[AW-HE38HW] Pearl white, [AW-HE38HK] Metallic black	Audio output	USB Audio Class Ver1.0	
Controller supported*1	AW-RP50, AW-RP120G, AK-HRP200G	Audio compression format	Linear PCM, 48 kHz, 16-bit, 2 channels	
Power	DC 12 V IN, PoE+ (IEEE802.3at standard)	Supported models	Devices standardly equipped with a USB 2.0 compatible port	
INPUT	Mic/line input	[Pan-tilt head unit]		
		Installation method	Stand-alone (Desktop) or suspended (Hanging)*4	
OUTPUT	Output Video	Output	HDMI	[AW-HE38HW/HK] HDMI connector * HDCP is not supported. * VIERA Link is not supported.
		Output	LAN	LAN connector for IP control (RJ-45) Equipped with straight/crossover cable auto detection function
INPUT/OUTPUT	Input/Output connector	Input	RS-232C	Mini DIN 8-pin (IN) Mini DIN 8-pin (OUT)
		Output	RS-422	CONTROL IN RS422A (RJ-45)
		USB	Mini-B port	
		SD card	microSD card slot	
		[Camera unit]		
		Imaging sensors	1/2.3-type MOS	
		Lens	AW-HE38HW/HK : Motorized 22x zoom, F1.6 to F4.3 [f=4.3 mm (11/64 inches) to 94.6 mm(3-23/32 inches); 35 mm (1-3/8 inches) equivalent: 31.6 mm (1-31/128 inches) to 705.0 mm (27-49/64 inches)]	
		Focus	Switching between auto and manual	
		Focus distance	Entire zooming range:1.2 m (3.94 ft) Wide end: 10 cm (0.33 ft)	
		Color separation optical system	On-chip color filter system	
		Minimum illumination	59.94 Hz	0.7 lx (50 IRE, F1.6, 48 dB, 1/60 without accumulation) 0.35 lx (50 IRE, F1.6, 48 dB, 1/30 with accumulation)[Frame Mix 6 dB]
			50 Hz	0.7 lx (50 IRE, F1.6, 48 dB, 1/50 without accumulation) 0.35 lx (50 IRE, F1.6, 48 dB, 1/25 with accumulation)[Frame Mix 6 dB]
		Horizontal resolution	1000 TV lines Typ (Center area)	
		Gain selection*2	Auto, 0 dB to 48 dB (3 dB step)	
		Frame mix*3	Auto, Off, 6 dB, 12 dB, 18 dB, 24 dB	
		Electronic shutter speed	During Auto	1/30 to 1/2000 [59.94 Hz] 1/25 to 1/2000 [50 Hz]
			During Manual	1/60 to 1/2000 [59.94 Hz] 1/50 to 1/2000 [50 Hz]
		Synchro scan	During Auto	1/100, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 [59.94 Hz]
			During Manual	1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 [50 Hz]
		Gamma	59.94 Hz : 59.94 Hz to 660.09 Hz 50 Hz : 50.00 Hz to 570.12 Hz	
		White balance	Off, Normal (Low, Mid, High), Cinema	
		White balance	AWB A, AWB B, ATW, 3200K, 5600K, VAR (2400K to 9900K)	
		Chroma amount variability	±3 step	
		Scene file	Full Auto, Manual1, Manual2, Manual3	
		[Network]		
		Resolution	JPEG VGA (640 x 360), QVGA (320 x 180) max.30 fps 1920 x 1080, 1280 x 720, 640 x 360, 320 x 180 max.30 fps H.264 1920 x 1080, 1280 x 720, 640 x 360, 320 x 180 max.60 fps	
		Supported protocol	IPV4 TCP/IP, UDP/IP, HTTP, HTTPS, RTSP, RTP, RTMP/RTCP, FTP, DHCP, DNS, NTP, IGMP, UPnP, ICMP, ARP, RTPSPoverTCP, RTPSPoverHTTP, SSL(TLS), MultiCast/UniCast IPV6 TCP/IP, UDP/IP, HTTP, HTTPS, RTSP, RTP, RTMP/RTCP, FTP, DHCPv6, DNS, NTP, ICMPv6(MLD), RTPSPoverTCP, RTPSPoverHTTP, SSL(TLS), MultiCast/UniCast	
		i-OS, Android support	JPEG image display	
		[Accessories]		
		Mount bracket for installation surface (Hanging*7 / Desktop): 1 Drop-prevention wire (already attached to the unit): 1 Bracket mounting screws (bind-head) M4 x 10 mm: 4 Main unit mounting screw (with flat washer, spring washer) M3 x 6 mm: 1 Power cable (1.5 m (4.92 ft)) [AW-HE38HW/HKPJ]: 1, [AW-HE38HW/HKEJ]: 3, [AW-HE38HW/HKPC]: 1 AC adaptor: 1		

*1: It may be necessary to upgrade the version of the controller so that the controller will support the unit. *2: During Auto, 6 dB to 48 dB (6 dB step) are available for AGC Max Gain setting.
*3: During Auto, 0 dB, 6 dB, 12 dB and 18 dB are available for Auto F.Mix Max Gain setting. *4: To ensure safety, the unit must be secured using the mount bracket supplied.
*5: Depending on the pan or tilt position, the camera may be reflected in the image. *6: Use of an STP (shielded twisted pair) cable is recommended.
*7: To ensure more safety, AW-HE38HW/HK can be secured by using the direct ceiling mount bracket (WV-Q105A).

System Configuration Example



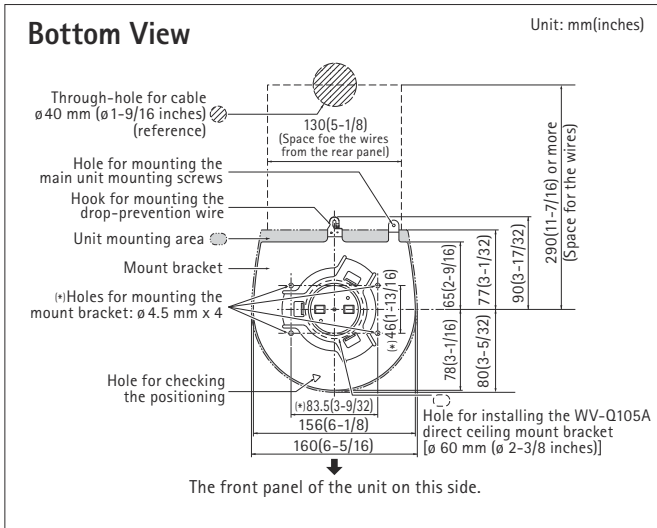
*The AC adaptor provided with the unit is not shown in the above figure.
*The camera unit automatically recognizes straight cables and cross cables connected to the LAN terminal.

Rear View



Other Functions

- Preset memory up to 100 positions.
- Functions such as freeze during preset, digital extender zoom and color temperature settings can be assigned to the user buttons on Panasonic controllers.
- Equipped with RS422 remote terminal; up to five units can be controlled via serial control from a controller.
- Equipped with RS232C remote terminal (standard serial communication support). Up to seven units can be controlled via daisy chain connection.
- Up to four units can be operated with a wireless remote controller (AW-RM50G sold separately).
- Easy installation thanks to use of turn-lock mechanism.



System Camera Options

As of February, 2018

<p>Live Production Center AV-HLC100</p> <p>Scheduled for release in the spring of 2018.</p>  <p>* Not available in some areas.</p>	<p>Control Assist Camera AW-HEA10W</p> 	<p>Control Assist Camera AW-HEA10K</p> 
<p>Remote Operation Panel AK-HRP200G</p> <p>(AC adaptor (DC12 V) is required separately.)</p> 	<p>Remote Camera Controller AW-RP50</p> 	<p>Remote Camera Controller AW-RP120G</p> <p>(AC adaptor (DC12 V) is required separately.)</p> 
	<p>Wireless Remote Control AW-RM50G</p> <p>(*AA, *R6* or *LR6* battery x 2 are not included.)</p> 	<p>Direct Ceiling Mount Bracket WV-Q105A</p> 

For more information, please visit Panasonic web site



<https://pro-av.panasonic.net/>

* Specifications are subject to change without notice.

Panasonic®

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Czech Republic	+421 (0) 903 447 757
Denmark	+45 43 20 08 57
Egypt	+20 2 23938151
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Saudi Arabia	+966 (1) 4790499
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Sweden	+46 (8) 680 26 41
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Thailand	+662 731 8888
Turkey	+90 216 578 3700
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Ukraine	+380 44 4903437
U.K.	+44(0)1344 70 69 13
U.S.A.	+1 877 803 8492
Vietnam	+65 6277 7284



Factories of AVC Networks Company have received ISO14001:2004-the Environmental Management System certification. (Except for 3rd party's peripherals.)



Pro multiplayery a multitaskery

S tenkým a výkonným herním notebookem HP Pavilion nemusíte dělat žádné kompromisy. Vychutnejte si kvalitní grafiku a výpočetní výkon pro hry a multitasking. Vylepšené chlazení navíc optimalizuje celkový výkon a stabilitu. Nechte se pohltit hrou díky displeji s tenkým rámečkem a zvukem na míru. Díky dokonalému vyvážení práce a zábavy zvládnete každou výzvu.



Vysoký výkon, každý den. Vysoký výkon, hráčův sen.

Zahraj si, cokoli se ti zachce, díky procesoru Intel® Core™ 10. generace^[1] a grafice NVIDIA® GeForce®. Displej s vysokým rozlišením a bleskovou obnovovací frekvencí poskytuje plynulý herní obraz, který vdechne obsahu život.

Maximální zábava na delší dobu

Herní notebook HP Pavilion disponuje systémem dvou ventilátorů zajišťujícím vylepšené chlazení. Široké rohové zadní ventilátory a další přívody vzduchu maximalizují proudění vzduchu a optimalizují tak celkový výkon a stabilitu. Počítač si proto zachová nízkou teplotu i při dlouhodobém používání.

Výrazný a impozantní design

Nechte se pohltit hrou. Displej se stylovým mikrorámečkem poskytuje úžasný obraz a přední reproduktory od B&O zajišťují výkonný zvuk na míru.

Windows 10



Funkce

SuperSpeed USB Type-A s přenosovou rychlostí signálu 5 Gb/s

Zapoj externí úložiště pomocí portu SuperSpeed USB Type-A s přenosovou rychlostí signálu 5 Gb/s.^[2]

Procesor Intel® Core™ 10. generace

Využívejte responzivní výkon ke zvýšení produktivity. Užijte si podmanivou zábavu, hraní i streamování a vytvářejte obsah díky zvýšenému výkonu.^[3]

Displej FHD IPS

Spolehněte se na křišťálově čistý obraz z jakéhokoli úhlu. S širokými pozorovacími úhly 178° a ostrým rozlišením 1 920 x 1 080 budete mít vždy skvělý pohled na svůj oblíbený obsah.^[4]

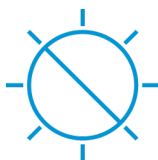
Antireflexní panel

Užijte si sluníčko a svůj oblíbený obsah s panelem vybaveným antireflexním filtrem. Neodrazivý panel s nízkou úrovní lesku zajistí lepší zobrazení ve venkovním prostředí.

SuperSpeed USB Type-C® s přenosovou rychlostí signálu 5 Gb/s

Zapoj externí úložiště pomocí portu SuperSpeed USB Type-C® s přenosovou rychlostí signálu 5 Gb/s. Navíc je oboustranný, takže se nemusíš strachovat, že ho zapojíš opačně.

1080p



6 GB

Specifikace

Operační systém	Windows 10 Home 64
Barva produktu	Grafitově černá, chromové logo
Rodina procesorů	Procesor Intel® Core™ i7 10. generace
procesor	Intel® Core™ i7-10750H (základní frekvence 2,6 GHz, max. 5,0 GHz s technologií Intel® Turbo Boost, 12 MB mezipaměti L3, 6 jader) ^[6,7]
Čipová sada	Intel® HM470
Paměť	16GB paměť DDR4-2933 SDRAM (2x 8 GB)
Interní paměť	Disková jednotka SSD 256 GB PCIe® NVMe™ M.2
Pevný disk (druhý)	1TB disk SATA HDD 7 200 ot./min
Design produktu	Lakovaný povrch
Optická jednotka	Optická jednotka není součástí dodávky
Grafická karta	Samostatná
Grafika (samostatná)	NVIDIA® GeForce® GTX 1660 Ti s technologií Max-Q (6 GB vyhrazené paměti GDDR6)
Monitor	39,6cm (15,6") displej IPS s rozlišením FHD (1 920 x 1 080), tenkým rámečkem, antireflexní úpravou, 250 nity a 45% NTSC
Velikost displeje (úhlopříčka)	39,6 cm (15,6")
Funkce pro ovládání zvuku	Zvuk od B&O; Dva reproduktory; HP Audio Boost 1.0
Minimální rozměry (Š x H x V)	36 x 25,6 x 2,34 cm (Rozměry jsou závislé na konfiguraci.)
Hmotnost	2,28 kg (Hmotnost je závislá na konfiguraci)
Klávesnice	Plnohodnotná klávesnice s tajemně bílým podsvícením a numerickými klávesami
Polohovací zařízení	HP Imagepad s podporou vícedotykových gest; Podpora přesného touchpadu
Vstupní zařízení	Akcelerometr
Web kamera	Kamera HP Wide Vision 720p HD s dvěma integrovanými digitálními mikrofony
Porty	1x SuperSpeed USB Type-C® s přenosovou rychlostí signálu 10 Gb/s (USB Power Delivery, DisplayPort™ 1.4, HP Sleep and Charge); 1x SuperSpeed USB Type-A s přenosovou rychlostí signálu 5 Gb/s (HP Sleep and Charge); 2x SuperSpeed USB Type-A s přenosovou rychlostí signálu 5 Gb/s; 1x HDMI 2.0; 1x RJ-45; 1x AC Smart Pin; 1x kombinovaný konektor pro sluchátka/mikrofon ^[19]
Rozšiřující sloty	Víceformátová čtečka multimediálních karet SD
Rozměry balení (š x h x v)	6,9 x 55,2 x 30,5 cm
Hmotnost balení	3,37 kg
Síťové rozhraní	Integrovaná síťová karta 10/100/1000 GbE LAN
Bezdrátové připojení	Intel® Wi-Fi 6 AX201 (2x2) a Bluetooth® 5 (podpora gigabitových přenosových rychlostí) ^[11,12,13,16]
Typ napájení	200W napájecí adaptér Smart AC
Typ baterie	3člávková Li-ion polymerová (52,5 Wh)
Životnost baterie	Až 5 hodin a 15 minut ^[3]
Doba nabíjení baterie	Podporuje rychlé nabíjení baterie: cca 50 % za 45 minut ^[5]
Hmotnost baterie	210 g
Účinnost napájení	Certifikace ENERGY STAR®; Registrace EPEAT® Silver
Předinstalovaný software	ExpressVPN (bezplatná 30denní zkušební verze); LastPass Premium (bezplatná 30denní zkušební verze) ^[22]
Dodávaný software	McAfee LiveSafe™
Software – produktivita a finance	1měsíční zkušební verze pro nové zákazníky Microsoft 365 ^[24]
Cloudová služba	Dropbox ^[1]
Číslo UPC	1951 22660642
Záruka	Dvouletá omezená záruka na díly a odeslání do servisu
Pokrytí omezenou zárukou a výjimky	Záruku na produkt můžete rozšířit až na 3 roky; Podrobnější informace vám poskytne váš prodejce produktů HP.

Nejlepší doporučené displeje, příslušenství a služby

Batohy

Batoh HP Pavilion Gaming 500	6EU58AA
Batoh HP Pavilion Gaming 400	6EU57AA
Batoh OMEN Transceptor 15	7MT84AA

Klávesnice

Herní klávesnice HP Pavilion 800	5JS06AA
Herní klávesnice HP Pavilion 550	9LY71AA
Klávesnice OMEN by HP Encoder	6YW75AA

Myši

Herní myš HP Pavilion 300	4PH30AA
Podložka pod herní myš HP Pavilion 300	4PZ84AA
Herní myš HP Pavilion 200	5JS07AA
Podložka pod herní myš HP Pavilion 400	5JH72AA
Myš OMEN Vector	8BC53AA
Podložka pod myš OMEN by HP 300	1MY15AA

Reproduktory

Herní reproduktory HP X1000	8PB07AA
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sluchátka

Špuntová sluchátka OMEN Dyad	8JE67AA
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Náhlavní sada

Bezdrátová herní náhlavní souprava HP X1000	7HC43AA
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Poznámky pod čarou se zprávami

- [1] Vícejádrová technologie byla vyvinuta za účelem zvýšení výkonu určitých softwarových produktů. Ne všichni zákazníci nebo softwarové aplikace získají díky této technologii výhodu. Výkon a taktovací frekvence se liší v závislosti na pracovním zatížení aplikací a na konfiguraci hardwaru a softwaru. Číselné hodnoty u modelů, značek nebo pojmenování produktů Intel nemusí odpovídat výkonu.
- [2] Některé funkce nejsou dostupné ve všech edicích nebo verzích systému Windows. Aby mohla být funkčnost systému Windows plně využita, systémy mohou vyžadovat instalaci vylepšeného nebo dodatečně zakoupeného hardwaru, ovladačů, softwaru nebo aktualizací systému BIOS. Systém Windows 10 je automatická aktualizace, která je vždy dostupná. Mohou být účtovány poplatky za internetové připojení a mohou existovat další požadavky pro aktualizace. Více informací naleznete na stránce <http://windows.microsoft.com>.
- [3] Vícejádrová technologie byla vyvinuta za účelem zvýšení výkonu určitých softwarových produktů. Výhody plynoucí z používání této technologie nejsou zaručené pro všechny zákazníky nebo softwarové aplikace. Výkon a taktovací frekvence se liší v závislosti na pracovním zatížení aplikací a konfiguraci hardwaru i softwaru. Číselné hodnoty u modelů, značek nebo názvů produktů Intel nemusí odpovídat výkonu. Vyžaduje internetové připojení, které není součástí dodávky. Zobrazení v plném rozlišení 4K vyžaduje obsah 4K. Výkon grafiky může být omezený v závislosti na maximálním rozlišení displeje
- [4] Skutečná propustnost se může lišit. USB Type-C® a USB-C® jsou ochranné známky společnosti USB Implementers Forum.

Poznámky pod čarou s technickými specifikacemi

- [1] Noví uživatelé služby Dropbox mají nárok na 25 GB bezplatného prostoru Dropbox po dobu 12 měsíců od data registrace. Veškeré podrobnosti a podmínky používání, včetně zásad zrušení služby naleznete na stránce služby Dropbox <https://www.dropbox.com/help/space/hp-promotion>. Je vyžadováno internetové připojení, které není součástí dodávky.
- [3] Životnost baterie se systémem Windows 10 MobileMark 18 se liší v závislosti na různých faktorech, včetně konkrétního modelu, konfigurace, spuštěných aplikací, funkcí, míry využití, bezdrátového připojení a nastavení řízení spotřeby. Maximální kapacita baterie vlivem dlouhodobého používání přirozeně klesá. Více informací naleznete na stránce <https://bapco.com/products/mobilemark-2018/>.
- [5] Nabíje baterii na kapacitu až 50 % za 45 minut, když je systém vypnutý (pomocí příkazu k vypnutí). Doporučujeme používat adaptér HP dodávaný s notebookem, nedoporučujeme používat nabíječku baterií s nižší kapacitou. Jakmile je baterie nabita na 50 % své kapacity, rychlost nabíjení se vrátí do normálu. Doba nabíjení se může lišit o +/-10 % vzhledem k odchylkám mezi systémy. K dispozici u vybraných produktů HP. Úplný seznam specifikací produktu naleznete na stránce <http://store.hp.com>.
- [6] Vícejádrová technologie byla vyvinuta za účelem zvýšení výkonu určitých softwarových produktů. Výhody plynoucí z používání této technologie nejsou zaručené pro všechny zákazníky nebo softwarové aplikace. Výkon a taktovací frekvence se liší v závislosti na pracovním zatížení aplikací a na konfiguraci hardwaru a softwaru. Číselné hodnoty u modelů, značek nebo názvů produktů Intel nemusí odpovídat výkonu.
- [7] Výkon funkce Intel® Turbo Boost se liší v závislosti na hardwaru, softwaru a celkové konfiguraci systému. Více informací naleznete na stránce <http://www.intel.com/technology/turboboost/>.
- [11] Využívejte síť Wi-Fi® s podporou gigabitového připojení při přenosu souborů mezi dvěma zařízeními, které jsou připojené ke stejnému směrovači. Vyžaduje bezdrátový směrovač, který se prodává samostatně a podporuje 160MHz kanály.
- [12] Bezdrátový přístupový bod a požadované služby internetového připojení jsou prodávány samostatně. Dostupnost veřejných bezdrátových přístupových bodů je omezená.
- [13] Bezdrátový přístupový bod a služby internetového připojení jsou prodávány samostatně. Dostupnost veřejných bezdrátových přístupových bodů je omezená. Rozhraní Wi-Fi 6 (802.11ax) je zpětně kompatibilní s předchozími specifikacemi 802.11. Specifikace pro rozhraní Wi-Fi 6 jsou ve fázi návrhu a nejsou konečné. Pokud se budou konečné specifikace lišit od navrhovaných, může být ovlivněna schopnost notebooku komunikovat s ostatními zařízeními bezdrátové sítě Wi-Fi 6. K dispozici pouze v zemích, kde je podporováno rozhraní 802.11ax.
- [16] Rozhraní Wi-Fi 6 (802.11ax) není podporováno na Ukrajině, v Rusku a v Indonésii, kde budou nastavení Wi-Fi optimalizována pro místní předepsané požadavky (802.11ac).
- [19] K dosažení plné funkčnosti technologie HP Sleep and Charge je zapotřebí standardní kabel s protokolem nabíjení USB Type-A/Type-C nebo hardwarový klíč s externím zařízením.
- [22] Po 30 dnech dojde k návratu k základní verzi služby LastPass.
- [24] Vyžaduje aktivaci do 180 dní od aktivace systému Windows.

© Copyright 2020 HP Development Company, L.P. Zde obsažené informace se mohou měnit bez předchozího upozornění. Jediná záruka k produktům a službám společnosti HP je určena záručními podmínkami přiloženými k těmto produktům a službám. Ze žádných zde uvedených informací nelze vyvodit existenci dalších záruk. Společnost HP není odpovědná za technické nebo redakční chyby ani za opomenutí vyskytující se v tomto dokumentu.

Některé funkce nejsou dostupné ve všech edicích nebo verzích systému Windows. Aby mohla být funkčnost systému Windows plně využita, systémy mohou vyžadovat instalaci vylepšeného nebo dodatečně zakoupeného hardwaru, ovladačů, softwaru nebo aktualizací systému BIOS. Systém Windows 10 je automatická aktualizace, která je vždy dostupná. Mohou být účtovány poplatky za internetové připojení a mohou existovat další požadavky pro aktualizace. Viz <http://windows.microsoft.com/cs-CZ>.

Intel, Core, Optane, Celeron, Pentium, Iris, XMM a Thunderbolt jsou ochranné známky nebo registrované ochranné známky společnosti Intel Corporation nebo jejich dceřiných společností v USA a dalších zemích. AMD, Ryzen, Athlon a Radeon jsou ochranné známky společnosti Advanced Micro Devices, Inc. Bluetooth je ochranná známka příslušného vlastníka, kterou společnost HP Inc. užívá na základě licence. NVIDIA a GeForce jsou ochranné známky nebo registrované ochranné známky společnosti NVIDIA Corporation v USA a dalších zemích. USB Type-C® a USB-C® jsou registrované ochranné známky společnosti USB Implementers Forum. DisplayPort™ a logo DisplayPort™ jsou ochranné známky ve vlastnictví asociace Video Electronics Standards Association (VESA®) v USA a dalších zemích. McAfee a McAfee LiveSafe jsou ochranné známky nebo registrované ochranné známky společnosti McAfee LLC v USA a dalších zemích. ENERGY STAR je registrovaná ochranná známka americké agentury



Kúpna zmluva

uzavretá podľa § 409 zákona č. 513/1991 Z. z. v znení neskorších predpisov (ďalej len „Obchodný zákonník“) a v súlade so zákonom č. 343/2015 Z. z. o verejnom obstarávaní a o zmene a doplnení niektorých zákonov v znení neskorších predpisov (ďalej len „zákon o verejnom obstarávaní alebo ZVO“)

Článok I.

Zmluvné strany

1.1. Kupujúci:	Univerzita Komenského v Bratislave
Sídlo:	Šafárikovo nám. 6, 814 99 Bratislava
Korešpondenčná adresa:	Šafárikovo nám. 6, P. O. Box 440, 814 99 Bratislava 1
Štatutárny orgán:	prof. JUDr. Marek Števček, PhD., rektor
Osoba oprávnená na podpis zmluvy:	Ing. Ingrid Kútina Želonková, PhD., kvestorka
IČO:	00 397 865
DIČ:	2020845332

(ďalej len „kupujúci“)

1.2. Predávajúci:	MediaTech Central Europe, a. s.
Sídlo:	Drieňová 34, 821 02 Bratislava
Zastúpený:	Ing. Bohumil Tonkovič, predseda predstavenstva
IČO:	35772581
DIČ:	2021488568
IČ DPH:	SK2021488568
Osoby oprávnené konať:	
- vo veciach zmluvy:	Ing. Bohumil Tonkovič, predseda predstavenstva
- vo veciach realizácie zmluvy:	Ing. Bohumil Tonkovič
Bankové spojenie:	
IBAN:	
Zapísaný v Obch. registri:	OS Bratislava I, Vložka č.: 5405/B, Oddiel: Sa
Kontakt:	+421-2-20 999 700, tender@mediatech.sk ,

(ďalej len „predávajúci“)

Článok II. Úvodné ustanovenia

- 2.1. Podkladom pre uzavretie tejto zmluvy je výsledok verejného obstarávania zákazky „Systém riadenia a ovládania prenosu video-míttingov - 36“ uskutočnenej v rámci dynamického nákupného systému „IKT pre Univerzitu Komenského v Bratislave“ .
- 2.2. Touto zmluvou sa stanovuje právny režim kúpy a predaja Systému riadenia a ovládania prenosu video-míttingov - otvoreného systému riadenia a ovládania digitálnych technológií pre zabezpečenie prenosu video konferenčných míttingov a vzdelávacích kurzov prostredníctvom MS Teams, a to podľa technickej špecifikácie uvedenej v Prílohe č. 1 Opis predmetu zmluvy a podľa Prílohy č. 2 Cenová ponuka. Príloha č. 1 a Príloha č. 2 sú neoddeliteľnou súčasťou tejto zmluvy.

Článok III. Predmet plnenia zmluvy

- 3.1. Predmetom tejto zmluvy je dodávka tovaru predávajúcim uvedeného v Prílohe č. 1 Opis predmetu zmluvy a podľa Prílohy č. 2 Cenová ponuka, na základe objednávok kupujúceho za podmienok uvedených v tejto zmluve a záväzok kupujúceho prevziať tovar a zaplatiť za neho predávajúcemu dohodnutú cenu podľa platobných podmienok dohodnutých v tejto zmluve.
- 3.2. Predávajúci sa zaväzuje, že kupujúcemu dodá tovar špecifikovaný v Prílohe č. 1 tejto zmluvy za cenu uvedenú v Prílohe č. 2 tejto zmluvy v súlade s príslušnými legislatívnymi predpismi a zároveň kupujúcemu umožní nadobúdať vlastnícke právo k tomuto tovaru.
- 3.3. Predávajúci sa zaväzuje dodať tovar podľa bodu 3.2 vrátane príslušnej kabeláže, inštalácie, potrebnej konfigurácie, ako aj integrácie s existujúcimi zariadeniami Kupujúceho, parametrizácie a dopravy namiesto dodania predmetu zmluvy. Dodávaný systém musí byť otvorený pre budúce zapojenie ďalších zariadení pre snímanie obrazu a zvuku.
- 3.4. Predávajúci sa zaväzuje:
 - a) dodávať tovar na základe objednávky kupujúceho,
 - b) potvrdiť objednávku do dvoch pracovných dní od jej doručenia kupujúcim podľa bodu 5.1 a dodať tovar do najneskôr do 30 dní od doručenia objednávky,
 - c) dodať tovar výlučne podľa špecifikácie uvedenej v Prílohe č. 1 zmluvy.

Článok IV. Cena tovaru

- 4.1. Cena za predmet plnenia zmluvy je stanovená v zmysle zákona č. 18/1996 Z. z. o cenách v znení neskorších predpisov (ďalej len „zákon o cenách“) a vyhlášky Ministerstva financií SR č. 87/1996 Z. z., ktorou sa vykonáva zákon o cenách v znení neskorších predpisov a v súlade s cenovou ponukou uvedenou v Prílohe č. 2 tejto zmluvy.

- 4.2. Zmluvná cena pokrýva všetky ekonomicky oprávnené náklady predávajúceho vynaložené v súvislosti s dodávkou predmetu plnenia zmluvy, napr. prepravné obaly na prepravu tovaru, doprava na miesto dodania prepravnými prostriedkami predávajúceho a v súlade s príslušnými legislatívnymi predpismi, vyložením tovaru na konkrétne miesto. V cene sú zahrnuté náklady spojené s výmenou reklamovaného tovaru počas záručnej doby.
- 4.3. Zmluvná cena za predmet zákazky je cenou konečnou, t. j. nebude sa navyšovať o ďalšie náklady.
- 4.4. Zmluvné strany dohodli cenu predmetu zmluvy tak ako je uvedená v Prílohe č. 2 tejto zmluvy:

Cena bez DPH:	7 845,00 Eur
DPH 20%:	1 569,00 Eur
Cena spolu s DPH:	9 414,00 Eur

Článok V.

Podmienky dodania a preberania tovaru

- 5.1. Predávajúci je povinný dodávať predmet zmluvy na základe e-mailovej objednávky kupujúceho. Objednávku posíela predávajúcemu zodpovedná osoba kupujúceho uvedená v objednávke.
- 5.2. Dodávka tovaru bude realizovaná dopravou na náklady predávajúceho, s vyložením na mieste určenom kupujúcim v súlade s článkom VI. ods. 1 tejto zmluvy.
- 5.3. Dodávka požadovaného tovaru sa uskutoční v čase dohodnutom v objednávke, najneskôr do 30 dní od doručenia objednávky. Tovar za kupujúceho preberá zodpovedná osoba uvedená v objednávke.
- 5.4. Tovar sa považuje za dodaný po podpísaní dodacieho listu zástupcami zmluvných strán s uvedením špecifikácie dodaného tovaru, dátumom, pečiatkou.
- 5.5. Kupujúci je pri prevzatí predmetu tejto zmluvy povinný prekontrolovať jeho úplnosť, kompletnosť, balenie a svojím podpisom na dodacom liste túto skutočnosť potvrdiť.
- 5.6. Kupujúci je oprávnený odmietnuť dodávku predmetu tejto zmluvy v prípade, ak táto bola dodaná po lehote na dodanie tovaru určenej zmluvou alebo objednávkou, alebo ak má viditeľné vady (najmä poškodené obaly), alebo ak nebolo dodržané objednané množstvo a druh tovaru alebo vlastnosti a špecifikácia uvedená v Prílohe č. 1 tejto zmluvy. V takomto prípade sa bude postupovať akoby tovar nebol dodaný a kupujúci je oprávnený odstúpiť od zmluvy.

Článok VI.

Miesto dodania a vyloženia tovaru a lehota dodania tovaru

- 6.1. Miesto dodania a vyloženia tovaru je Univerzita Komenského v Bratislave, Prírodovedecká fakulta, Katedra didaktiky prírodných vied, psychológie a pedagogiky, Ilkovičova 6, Bratislava.

- 6.2. Predávajúci sa zaväzuje dodať predmet zmluvy špecifikovaný v Prílohe č. 1 v súlade s článkom III ods. 2 tejto zmluvy najneskôr do 30 dní od doručenia objednávky.

Článok VII.

Platobné podmienky

- 7.1. Kupujúci sa zaväzuje za riadne a včas dodaný tovar zaplatiť predávajúcemu kúpnu cenu podľa Prílohy č. 2 tejto zmluvy na základe faktúry vystavenej predávajúcim po dodaní tovaru podľa článku V. tejto zmluvy. Kupujúci neposkytne predávajúcemu preddavok na zrealizovanie predmetu plnenia zmluvy.
- 7.2. Faktúra bude obsahovať náležitosti podľa zákona č. 222/2004 Z. z. o dani z pridanej hodnoty v znení neskorších predpisov. Neoddeliteľnou súčasťou faktúry bude originál dodacieho listu.
- 7.3. Predávajúci je povinný uvádzať vo faktúrach tovar, jeho výrobcu tak, ako je uvedené v Prílohe č. 1 a v Prílohe č. 2 tejto zmluvy.
- 7.4. Lehota splatnosti faktúry je 30 dní odo dňa prevzatia a odsúhlasenia faktúry kupujúcim. Ak predložená faktúra nebude spĺňať náležitosti podľa tohto článku alebo nebude vystavená v súlade so zmluvou, kupujúci ju vráti v lehote splatnosti predávajúcemu na dopracovanie. Opravená faktúra je splatná do 30 dní odo dňa jej prevzatia a odsúhlasenia kupujúcim. Faktúry budú uhrádzané výhradne prevodným príkazom.

Článok VIII.

Záruky na tovary

- 8.1. Zmluvné strany sa dohodli, že záručná doba na predmet zmluvy - dodaný tovar je 24 mesiacov odo dňa dodania tovaru.
- 8.2. Predávajúci zodpovedá za to, že tovar bude riadne dodaný v súlade s touto zmluvou, bude mať vlastnosti dohodnuté v tejto zmluve, bude v súlade s právnymi predpismi a bude spĺňať všetky náležitosti stanovené platnou legislatívou.
- 8.3. Predávajúci zodpovedá za kvalitu dodávaných tovarov, vrátane skrytých väd tovaru počas celého trvania záručnej doby.
- 8.4. Kupujúci je oprávnený reklamovať vady dodaného tovaru e-mailom. Súčasťou môže byť aj fotodokumentácia reklamovaného tovaru. Náklady na dopravu súvisiacu s reklamovaným tovarom znáša predávajúci v plnom rozsahu.
- 8.5. Vady zjavné, kvalitatívne alebo množstevné, zistené pri prevzatí tovaru bude kupujúci reklamovať najneskôr do 5 pracovných dní odo dňa dodania tovaru. Ostatné vady je kupujúci povinný reklamovať okamžite po zistení vady, najneskôr však do skončenia záručnej doby.
- 8.6. Zmluvné strany sa dohodli, že v prípade zistenia vady počas záručnej doby dodávateľ začne s odstraňovaním vady a riešením servisnej požiadavky objednávateľa najneskôr v nasledujúci pracovný deň.
- 8.7. Kupujúci má právo v prípade zistenia akýchkoľvek väd dodaného tovaru na:

- a) výmenu vadného tovaru za tovar nový, bezchybný, najneskôr do 3 dní od okamihu uplatnenia zodpovednosti za vady,
 - b) odstúpenie od zmluvy v prípade nesplnenia povinnosti predávajúceho vymeniť vadný tovar za bezchybný v stanovenej lehote alebo v prípade, ak objednávateľ požadoval v rámci jedného kalendárneho mesiaca reklamáciu viac ako trikrát.
- 8.8. Kupujúci bude akceptovať iba faktúru za dodávku bezchybného predmetu zmluvy, t. j. v súlade s dodacím listom.

Článok IX.

Sankcie

- 9.1. V prípade, že predávajúci bude v omeškaní s plnením predmetu tejto zmluvy, teda s dodaním tovaru v lehote uvedenej v čl. V. ods. 3, kupujúci si môže uplatniť zmluvnú pokutu vo výške 0,1 % za každý začatý deň omeškania z ceny nedodaného tovaru, a to až do doby dodania tovaru. Týmto však nie je dotknutý nárok na náhradu škody.
- 9.2. V prípade, že predávajúci bude v omeškaní s dodaním reklamovaného tovaru v lehote uvedenej v čl. VIII. ods. 5 písm. a), kupujúci si môže uplatniť zmluvnú pokutu vo výške 0,1 % za každý začatý deň omeškania z ceny nedodaného tovaru, a to až do doby dodania tovaru. Týmto však nie je dotknutý nárok na náhradu škody.
- 9.3. Ak predávajúci nedodrží jednotkové ceny uvedené v Prílohe č. 2 tejto zmluvy, kupujúci je oprávnený si uplatniť zmluvnú pokutu vo výške 100 € za každú jednu nesprávne vyfakturovanú položku.
- 9.4. V prípade, že predávajúci nedodrží vlastnosti tovaru uvedené v Prílohe č. 1 zmluvy alebo nedodrží niektorú z požiadaviek na tovar uvedenú v čl. III ods. 3 zmluvy, je kupujúci oprávnený uplatniť zmluvnú pokutu vo výške 0,1 % z hodnoty vadného plnenia za každé jedno porušenie.
- 9.5. Ak nebude vykonaná úhrada predávajúcemu v zmysle platobných podmienok tejto kúpnej zmluvy, môže si predávajúci uplatniť za každý deň omeškania úrok z omeškania v zákonnej výške z hodnoty neuhradenej faktúry.
- 9.6. V prípade, ak zmluvná strana poruší zmluvu podstatným spôsobom podľa čl. X. ods. 3, je zmluvná strana, okrem odstúpenia od zmluvy, oprávnená uplatniť si zmluvnú pokutu vo výške 5% z celkovej zmluvnej ceny.
- 9.7. V prípade, ak zmluvná strana poruší zmluvu iným ako podstatným spôsobom a takéto porušenie nenapraví ani v dodatočnej primeranej lehote určenej na nápravu, je druhá zmluvná strana, okrem odstúpenia od zmluvy, oprávnená uplatniť si pokutu vo výške 5% z celkovej zmluvnej ceny.
- 9.8. Zmluvné pokuty sú splatné do 14 dní odo dňa doručenia výzvy na ich uhradenie. Kupujúci je však oprávnený aj započítať akúkoľvek svoju i nesplatnú pohľadávku, ktorú má voči predávajúcemu, s pohľadávkou, i nesplatnou, ktorá vznikne z tejto zmluvy predávajúcemu voči kupujúcemu. Zápočet pohľadávok môže kupujúci uplatniť pri úhrade faktúry predávajúceho.

9.9. Zaplacením zmluvnej pokuty nie je dotknutý nárok kupujúceho požadovať náhradu škody.

Článok X.

Právo odstúpenia od zmluvy

10.1. Zmluvu je možné ukončiť dohodou zmluvných strán k určitému dátumu alebo odstúpením od zmluvy.

10.2. Odstúpenie od zmluvy je možné:

- a) pri podstatnom porušení zmluvy druhou zmluvnou stranou, alebo keď sa pre druhú zmluvnú stranu stalo splnenie podstatných zmluvných povinností úplne nemožným (vis maior), napr. v prípade poistnej udalosti, živeľnej udalosti,
- b) ak predávajúci poruší zmluvu iným ako podstatným spôsobom a takéto porušenie nenapraví ani v dodatočnej primeranej lehote na nápravu určenej kupujúcim.

10.3. Za podstatné porušenie zmluvy na účely odstúpenia od tejto zmluvy sa považuje najmä:

- a) dodanie tovaru za iné ako jednotkové ceny uvedené v Prílohe č. 2 zmluvy,
- b) ak predmet plnenia zmluvy bude fakturovaný v rozpore s dohodnutými podmienkami v zmluve alebo bude opakovane fakturovaný,
- c) neschopnosť predávajúceho dodať predmet zmluvy za jednotkové ceny uvedené v Prílohe č. 2 zmluvy,
- d) omeškanie predávajúceho s dodávkou tovaru o viac ako 2 pracovné dni,
- e) omeškanie predávajúceho s dodaním reklamovaného tovaru o viac ako 2 pracovné dni,
- f) omeškanie kupujúceho s úhradou faktúry o viac ako 15 dní,
- g) omeškanie zmluvnej strany s úhradou sankcie o viac ako 15 dní,
- h) predávajúci poskytne kupujúcemu predmet zmluvy takým spôsobom, ktorý je v rozpore s touto zmluvou (napr. nebolo dodržané objednané množstvo a druh tovaru alebo vlastnosti a špecifikácia uvedená v Prílohe č. 1 tejto zmluvy, opätovné dodanie nekvalitného tovaru, tovaru so zjavnými vadami alebo tovaru nespĺňajúceho kritéria podľa čl. III. ods. 3 v prípade, že kupujúci na nedostatky predávajúci a aspoň raz písomne alebo elektronicky, prostredníctvom emailu upozornil),
- i) ak predávajúci alebo kupujúci vstúpi do likvidácie, na jeho majetok bude vyhlásený konkurz, konkurzné konanie bolo zastavené pre nedostatok majetku, bude začatá reštrukturalizácia, bude zahájené exekučné konanie.

10.4. Zmluva zaniká dňom doručenia písomného oznámenia o odstúpení od zmluvy druhej zmluvnej strane.

10.5. Odstúpením od zmluvy nie je dotknutý nárok na náhradu škody vzniknutej porušením zmluvy a nárok na zaplatenie zmluvnej pokuty.

Článok XI.
Zmena zmluvy

- 11.1. Zmluvné strany sa dohodli, že túto zmluvu je možné meniť v súlade s § 18 ods. 1 písm. a) zákona o verejnom obstarávaní jednostranne na základe písomného oznámenia zo strany kupujúceho za podmienok dohodnutých v tomto článku.
- 11.2. Zmenou zmluvy v zmysle tohto Článku nemôže dôjsť k zmene ceny tovaru uvedenej v Prílohe č. 2.

Článok XII.
Záverečné ustanovenia

- 12.1. Právne vzťahy oboch zmluvných strán neupravené touto zmluvou sa riadia príslušnými ustanoveniami Obchodného zákonníka a ostatnými právnymi predpismi SR.
- 12.2. Táto zmluva nadobúda platnosť dňom jej podpisu obidvoma zmluvnými stranami a účinnosť v deň nasledujúci po dni jej zverejnenia v Centrálnom registri zmlúv vedenom Úradom vlády SR.
- 12.3. Predávajúci berie na vedomie zverejnenie tejto zmluvy v celom rozsahu v Centrálnom registri zmlúv vedenom Úradom vlády SR.
- 12.4. Zmluva je vyhotovená v štyroch rovnopisoch, pričom kupujúci aj predávajúci dostanú po dvoch rovnopisoch.
- 12.5. Zmluvné strany prehlasujú, že zmluvu pred jej podpisom prečítali, jej obsahu porozumeli a s ním súhlasili, čo potvrdzujú svojimi podpismi.

Príloha č. 1: Opis predmetu zmluvy

Príloha č. 2: Cenová ponuka

V Bratislave dňa

V Bratislave dňa

za Kupujúceho :

za Predávajúceho:

.....
Ing. Ingrid Kútna Želonková, PhD.
kvestorka
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.....
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MediaTech Central Europe, a.s.

Opis predmetu zákazky

Predmet zákazky:

Systém riadenia a ovládania prenosu video-mítingov - 36

Technická špecifikácia:

Otvorený systém riadenia a ovládania digitálnych technológií pre zabezpečenie prenosu video konferenčných mítingov a vzdelávacích kurzov prostredníctvom MS Teams	
Snímacie zariadenie s pohyblivým sledovaním prezentujúceho	<p>1/2.3-Type MOS motorizovaný objektív: min. 22x zoom, F1.6 to F4.3 Inteligentné zväčšenie min. 30-násobne a 1,4-násobný digitálny predlžovač HDMI video výstup k nahrávaniu zabudovanému na USB a microSD kartu PoE + pre napájanie, zvuk a video s veľmi nízkou latenciou zaznamenávanie a ovládanie pomocou jediného kábla rozsah natáčania $\pm 175^\circ$ a rozsah naklonenia -30° až $+90^\circ$ vstavaný kodér H.264 / MJPEG pre min. 7 kanálov kódovania až 25 Mb / s. s podporovaným hardvérovým alebo softvérovým dekodérom sériová kompatibilita RS-422, podpora NDI/HX Virtuálny ovládač USB PTZ Dodanie vrátane kabeláže, inštalácie a konfigurácie</p>
Riadiaci systém so systémom automatického sledovania prezentujúceho	<p>CPU: min. Core i7-4710MQ (2.50 GHz) RAM: min. 8 GB obrazovka: min. 1920 x 1080 a viac GPU: min. NVIDIA GeForce GTX 1050T, NVIDIA Quadro P2000 alebo NVIDIA GeForce RTX 2060 detekcia pohybu, rozpoznávanie tváre a učenie sa pre na vysoko presné automatické sledovanie s minimálnou chybou sledovania otvorené API</p> <p>Menežovateľný gigabitový prepínač s PoE + so SFP MSTP / RSTP / STP - VLAN, súkromná VLAN, hlasová VLAN - agregácia liniek - DHCP Snooping, IGMP Snooping - TACACS +, RADIUS, 802.1X, MAC Filtrovanie, ACL, - DiffServ, CoS - statické smerovanie - funkčnosť servera DHCP Dodanie vrátane kabeláže, inštalácie, konfigurácie a integrácie so zariadeniami v miestnosti</p>
Audio systém	<p>lineárne pole mikrofónov technológia smerovania na snímanie zvuku kdekoľvek v miestnosti technológia automatického sústredenia automatické miešanie, potlačenie akustickej ozveny, redukcia šumu a automatické riadenie zosilnenia PoE napájanie</p>

Dante & AES67 montáž na strop 2.1 Soundbar Integrated subwoofer HDMI (ARC with CEC) vstup optický & koaxiálny vstup (SPDIF) min. 2 x 15 W a 1x 30 W Dodanie vrátane inštalácie, parametrizácie, integrácie s existujúcimi zariadeniami v miestnosti, doprava

Príloha č. 2 Kúpnej zmluvy: Cenová ponuka

Predmet zákazky:

Systém riadenia a ovládania prenosu video-mitingov - 36

Otvorený systém riadenia a ovládania digitálnych technológií pre zabezpečenie prenosu video konferenčných mitingov a vzdelávacích kurzov prostredníctvom MS Teams					
	Technická špecifikácia	Výrobca, typové označenie	Počet	MJ	Cena bez DPH
Snimacie zariadenie s pohyblivým sledovaním prezentujúceho	1/2.3-Type MOS motorizovaný objektív: min. 22x zoom, F1.6 to F4.3 Inteligentné zväčšenie min. 30-násobne a 1,4-násobný digitálny predlžovač HDMI video výstup k nahrávaniu zabudovanému na USB a microSD kartu PoE + pre napájanie, zvuk a video s veľmi nízkou latenciou zaznamenávanie a ovládanie pomocou jediného kábla rozsah natáčania ± 175 ° a rozsah naklonenia -30 ° až + 90 ° vstavaný kodér H.264 / MJPEG pre min. 7 kanálov kódovania až 25 Mb / s. s podporovaným hardvérovým alebo softvérovým dekodérom sériová kompatibilita RS-422, podpora NDI/HX Virtuálny ovládač USB PTZ Dodanie vrátane kabeláže, inštalácie a konfigurácie	Panasonic AW-HN38HW	1	ks	2 750,00 €
		HP NTB Pavilion Gaming 15-dk1008nc;15.6" FHD AG;16GB DDR4;i7-10750H;256GB SSD+1TB 7200;GeForce GTX 1660Ti;Win10;black	1	ks	1 195,00 €
		Software: Panasonic AW-SF100 Z, PTZ Virtual USB Driver, PTZ Control Center	1	ks	490,00 €
Riadiaci systém so systémom automatického sledovania prezentujúceho	CPU: min. Core i7-4710MQ (2.50 GHz) RAM: min. 8 GB obrazovka: min. 1920 x 1080 a viac GPU: min. NVIDIA GeForce GTX 1050T, NVIDIA Quadro P2000 alebo NVIDIA GeForce RTX 2060 detekcia pohybu, rozpoznávanie tváre a učenie sa pre na vysoko presné automatické sledovanie s minimálnou chybou sledovania otvorené API Pripojenie rozhrania Dante do PC, SW Menežovateľný gigabitový prepínač s PoE + so SFP MSTP / RSTP / STP - VLAN, súkromná VLAN, hlasová VLAN - agregácia liniek - DHCP Snooping, IGMP Snooping - TACACS +, RADIUS, 802.1X, MAC Filtrovania, ACL, - DiffServ, CoS - statické smerovanie - funkčnosť servera DHCP Dodanie vrátane kabeláže, inštalácie, konfigurácie a integrácie so zariadeniami v miestnosti	Software: Audinate Dante Virtual Soundcard	1	ks	60,00 €
		Cisco C1000-8P-2G-L	1	ks	490,00 €
		Shure MXA710	1	ks	2 370,00 €
Audio systém	lineárne pole mikrofónov technológia smerovania na snímanie zvuku kdekkoľvek v miestnosti technológia automatického sústredenia automatické miešanie, potlačenie akustickej ozveny, redukcia šumu a automatické riadenie zosilnenia PoE napájanie Dante & AES67 montáž na strop Prevodník DANTE 2.1 Soundbar Integrated subwoofer HDMI (ARC with CEC) vstup optický & koaxiálny vstup (SPDIF) min. 2 x 15 W a 1x 30 W Dodanie vrátane inštalácie, parametrizácie, integrácie s existujúcimi zariadeniami v miestnosti, doprava	Audinate AVIO 0x1	1	ks	110,00 €
		Audac IMEO1	1	ks	380,00 €
		Spolu bez DPH:			
DPH 20%:				1 569,00 €	
Spolu s DPH:				9 414,00 €	

Auto Tracking System Web API Specifications

Version 1.6

July 11, 2016

Panasonic Corporation

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1 Introduction

1.1 Purpose of this Document

This document stipulates the specifications of the IFs used for communication between the Web applications configuring the Auto Tracking System and external systems.

2 Interface

2.1 Specifications

In this document, the communication IFs specified as Web APIs conform to the communication specifications of HTTP1.1, and the control for the system is implemented in the form of HTTP requests issued to the URLs on the Web server. Excluding some commands (Register Scene File), all HTTP requests are issued as the GET method.

2.2 Format

The format (URL) of control commands provided to an external system as a Web API is specified as below.

[Transmission]

http://[IP Address]:[PortNo]/cgi-bin/auto_tracking?cmd=[Command]&[Parameter]=[Value]&...

Table 2.2-1 Details of Transmission Format

No.	Name	Description
1	IP Address	This is the IP address of the Web application.
2	PortNo	This is the standby port number of the Web application (default: 1337)
3	Command	This is the control command string. A list of commands that can be used is provided in 2.3 List of Commands.
4	Parameter	This is the control command parameter. You can use an "&" to specify several parameters. Since it is specified in each command, refer to each section in 3 Details of Commands.
5	Value	This is the value set in the control command parameter. Since it is specified in each command, refer to each section in 3 Details of Commands.

[Reception]

The following three patterns are specified for the format of the response data received by an external system.

Pattern 1: Return of only the response value

200 OK [Response]:[Response value]

Pattern 2: Return of the response value and response parameter value (string)

200 OK [Response]:[Response value],[Parameter]:[Parameter value], [Parameter]:[Parameter value],...

Pattern 3: Return of the response value and response parameter value (binary data)

200 OK [Response]:[Response value],[Binary data]

Table 2.2-2 Details of Reception Format

No.	Name	Description	Related command
1	Response	"resp" is saved as a fixed string.	All commands
2	Response value	"ack" or "nack" is saved as the response value.	All commands
3	Parameter	Since it is specified in each command, refer to each section in 3 Details of Commands.	Camera Control Camera Setting Camera State, etc.
4	Parameter value	Since it is specified in each command, refer to each section in 3 Details of Commands.	Camera Control Camera Setting Camera State, etc.
5	Binary data	Since it is specified in each command, refer to each section in 3 Details of Commands.	Thumbnail Image

2.3 List of Commands

This section describes the list of commands stipulated in these specifications.

For details on each command, refer to 3 Details of Commands.

Table 2.3-1 List of Commands

No.	Name	Description
1	CameraControl	Used to establish a connection or disconnect the connection with the target camera.
2	CameraSetting	Used to acquire or change the settings of the target camera.
3	Detect	Used to set the tracking target.
4	Tracking	Used to start or stop the tracking process.
5	Target	Used to set the display position of the tracking process target.
6	Angle	Used to perform PTZ control (automatic) of the target camera.
7	CameraState	Used to acquire the state information of the camera.
8	Image	Used to acquire a shot of camera images.
9	TrackingControl	Used to enable or disable the tracking process.
10	CameraControlView	Used to establish a connection or disconnect the connection with the target camera, and to display the tracking applications on the screen.
11	RegisterSceneFile	Used to register a new scene file or update an existing scene file.
12	GetFaceRecognition	Used to acquire the system information list (face recognition information).
13	EditFaceRecognition	Used to edit the system information (face recognition information).
14	ClipFacelImage	Used to extract the face image data.

3 Details of Commands

3.1 Camera Control

The Camera Control command is used to start or stop communication with the target camera. The list of transmission parameters is as shown below.

Table 3.1-1 List of Transmission Parameters

Name	Usage	Type	Description
id	Mandatory	Integer value	This is the camera ID.
control	Mandatory	String	Either start or stop is saved.

The reception response parameter during communication with the camera is specified as below.

message:[1]

The information shown below is saved in [1].

Table 3.1-2 List of Values

No.	Name	Type	Description
1	message	String	In the case of a negative acknowledgment, the cause is saved as a message.

3.2 Camera Setting

The Camera Setting command is used to acquire or change the settings of the camera managed by Tracking Control.

3.2.1 Acquiring the Settings

The list of transmission parameters during acquisition of camera settings is described below.

Table 3.2-1 List of Transmission Parameters

Name	Usage	Type	Description
id	Mandatory	Integer value	This is the camera ID.

The reception response parameters during acquisition of camera settings are specified as below.

id:[1],name:[2],ip_addr:[3],port_no:[4],login:[5],password:[6],zoom:[7],height:[8],distance:[9],angle:[10],angle_mode:[11],angle_zoom:[12],detection:[13],lost:[14],lost_action_wait_sec:[15],auto_start:[16],sensitivity:[17],disable_area[18],detect_area[19],template_matching_level[20],scene_file_name:[21], face_recognition:[22],face_recognition_id:[23],upper_body_detection:[24]

The camera setting information is saved in the below-mentioned format at the locations corresponding to the numbers enclosed within "[]". Note that when the camera ID is invalid, "nack", which indicates a negative acknowledgment, is saved, and the response parameter described above is not saved.

Table 3.2-2 List of Values

No.	Name	Type	Description
1	id	Integer value	This is the camera ID.
2	name	String	This is the name of the camera.
3	ip_addr	String	This is the IP address or host name of the camera.
4	port_no	Integer value	This is the port number of the camera.
5	login	String	This is the login account of the camera.
6	password	String	This is the login password of the camera.
7	zoom	Integer value	This is the upper-limit value (0 to 100) of magnification during the tracking process.
8	height	Integer value	This is the installation height of the camera (T.B.D)
9	distance	Integer value	This is the installation distance of the camera from the platform (T.B.D)
10	angle	Integer value	This is the installation angle of the camera from the platform (T.B.D)
11	angle_mode	Integer value	Indicates the automatic calculation setting of the Angle command for the Upper Body, Full Body, and Full Shot by delimiting with a comma. 0: Manual (use the value set by the user) 1: Auto

No.	Name	Type	Description
			Example: When automatic setting is made only for the Upper Body: 1,0,0 When automatic setting is made only for the Full Shot: 0,0,1
12	angle_zoom	Integer value	Indicates the magnification value (0 to 100) during manual setting for the Upper Body, Full Body, and Full Shot by delimiting with a comma. Example: All 100%: 100, 100, 100
13	detection	String	This is the execution setting of the DETECT process. Either of the following values is saved. "manual": Manual "auto": Auto
14	lost	String	This is the process setting during LOST detection. Either of the following values is saved. "home": The HOME position is called "none": No operation is performed.
15	lost_action_wait_sec	Integer value	The standby time (seconds) until the HOME position is called after LOST detection is saved.
16	auto_start	Integer value	This is the automatic execution setting of the Tracking process after the Detect process. Either 0 (disabled) or 1(enabled) is saved.
17	sensitivity	Integer value	This is the dead-zone setting of the tracking region.
18	disable_area	Integer value	The information about the region in which the automatic tracking process is not allowed to start is saved by delimiting with a comma. 0: Indicates the information of the top left position (X coordinate) of the region information. 1: Indicates the information of the top left position (Y coordinate) of the region information. 2: Indicates the width of the region information. 3: Indicates the height of the region information.
19	detect_area	Integer value	The coordinate information of the top end and bottom end of the automatic detection setting region is saved by delimiting with a comma. 0: Indicates the information of the top end position (Y coordinate) of the region information. 1: Indicates the information of the bottom end position (Y coordinate) of the region information.
20	template_matching_level	Integer value	This is the template processing priority level (1 to 10) of the tracking process.
21	scene_file_name	String	This is the scene file name that is used as a tracking process parameter. A blank character (" ") is saved in the default state.
22	face_recognition	Integer value	This is the setting of the facial recognition. Either 0 (disabled) or 1(enabled) is saved.
23	face_recognition_id	Integer value	This is the ID of the image for the facial recognition. If the image is not set, NULL is saved.

No.	Name	Type	Description
24	upper_body_detection	Integer value	This is the setting of the upper body detection. Either 0 (disabled) or 1(enabled) is saved.

3.2.2 Changing the Settings

The list of transmission parameters when changing the camera settings is described below.

Table 3.2-3 List of Transmission Parameters

Name	Usage	Type	Description
id	Mandatory	Integer value	This is the camera ID.
name	Optional	String	This is the name of the camera.
ip_addr	Optional	String	This is the IP address or host name of the camera.
port_no	Optional	Integer value	This is the port number of the camera.
login	Optional	String	This is the login account of the camera.
password	Optional	String	This is the login password of the camera.
zoom	Optional	Integer value	This is the upper-limit value (0 to 100) of magnification during the tracking process.
height	Optional	Integer value	This is the installation height of the camera (T.B.D)
distance	Optional	Integer value	This is the installation distance of the camera from the platform (T.B.D)
angle	Optional	Integer value	This is the installation distance of the camera from the platform (T.B.D)
angle_mode	Optional	Integer value	For details on the setting value, refer to 3.2.1 Acquiring the Settings.
angle_zoom	Optional	Integer value	For details on the setting value, refer to 3.2.1 Acquiring the Settings.
detection	Optional	String	For details on the setting string, refer to 3.2.1 Acquiring the Settings.
lost	Optional	String	For details on the setting string, refer to 3.2.1 Acquiring the Settings.
lost_action_wait_sec	Optional	Integer value	For details on the setting value, refer to 3.2.1 Acquiring the Settings.
auto_start	Optional	Integer value	For details on the setting value, refer to 3.2.1 Acquiring the Settings.
sensitivity	Optional	Integer value	For details on the setting value, refer to 3.2.1 Acquiring the Settings.
disable_area	Optional	Integer value	For details on the setting value, refer to 3.2.1 Acquiring the Settings.
detect_area	Optional	Integer value	For details on the setting value, refer to 3.2.1 Acquiring the Settings.
template_matching_level	Optional	Integer value	For details on the setting value, refer to 3.2.1 Acquiring the Settings.
scene_file_name	Optional	String	For details on the setting value, refer to 3.2.1 Acquiring the Settings.
face_recognition	Optional	Integer value	For details on the setting value, refer to 3.2.1 Acquiring the Settings.
face_recognition_id	Optional	Integer value	For details on the setting value, refer to 3.2.1 Acquiring the Settings.

Name	Usage	Type	Description
upper_body_detection	Optional	Integer value	For details on the setting value, refer to 3.2.1 Acquiring the Settings.

The reception response when changing the camera settings is saved as either "ack", which indicates a positive acknowledgment, or "nack", which indicates a negative acknowledgment.

3.3 Detect

The Detect command is used when detection of the tracking target is started. The list of transmission parameters is as shown below.

Table 3.3-1 List of Transmission Parameters

Name	Usage	Type	Description
id	Mandatory	Integer value	This is the camera ID.
process	Mandatory	String	Either start or stop is saved.
mode	Optional	String	Either auto or manual is saved. * This value is not required when "stop" is specified in "process".
position_x	Optional	Integer value	This value is saved when "manual" is specified in "mode". It is the X coordinate of the tracking target. * This value is not required when "auto" is specified in "mode".
position_y	Optional	Integer value	This value is saved when "manual" is specified in "mode". It is the Y coordinate of the tracking target. * This value is not required when "auto" is specified in "mode".

The reception response is saved as either "ack", which indicates a positive acknowledgment, or "nack", which indicates a negative acknowledgment.

3.4 Tracking

The Tracking command is used to start or stop the tracking process. The list of transmission parameters is as shown below.

Table 3.4-1 List of Transmission Parameters

Name	Usage	Type	Description
id	Mandatory	Integer value	This is the camera ID.
process	Mandatory	String	Either start or stop is saved.

The reception response is saved as either "ack", which indicates a positive acknowledgment, or "nack", which indicates a negative acknowledgment.

3.5 Target

The Target command is used to set the display position of the tracking process target.

Table 3.5-1 List of Transmission Parameters

Name	Usage	Type	Description
id	Mandatory	Integer value	This is the camera ID.
position_x	Mandatory	Integer value	This is the X coordinate of the specified display position.
position_y	Mandatory	Integer value	This is the Y coordinate of the specified display position.

The reception response is saved as either "ack", which indicates a positive acknowledgment, or "nack", which indicates a negative acknowledgment.

3.6 Angle

The Angle command is used for capturing the image of the person, who is the tracking target, by using any one of Upper Body / Full Body / Full / Zoom OFF when the PTZ control that is decided in accordance with the camera settings to be controlled is executed automatically. The list of transmission parameters is as shown below.

Table 3.6-1 List of Transmission Parameters

Name	Usage	Type	Description
id	Mandatory	Integer value	This is the camera ID.
mode	Mandatory	String	Any one of upper / body / full / off is saved.

The reception response is saved as either "ack", which indicates a positive acknowledgment, or "nack", which indicates a negative acknowledgment.

3.7 Camera State

The Camera State command is used to acquire the automatic tracking process state of the camera managed by Tracking Control. The list of transmission parameters is as shown below.

Table 3.7-1 List of Transmission Parameters

Name	Usage	Type	Description
id	Mandatory	Integer value	This is the camera ID.

The reception response parameters are specified as below.

id:[1],connection:[2],detection:[3],tracking:[4],lost:[5],angle:[6],preset:[7],angle_type:[8],target_position[9],target_position_area:[10] ,pan_tilt_limit:[11]

The camera state information is saved in the below-mentioned format at the locations corresponding to the numbers enclosed within "[]". Note that when the camera ID is invalid, "nack", which indicates a negative acknowledgment, is saved, and the response parameter described above is not saved.

Table 3.7-2 List of Values

No.	Name	Type	Description
1	id	Integer value	This is the camera ID.
2	connection	Integer value	Indicates the communication state with the camera. 0: No communication, or communication disruption 1: Communication in progress
3	detection	Integer value	Indicates the detection state of the tracking target. 0: The tracking target is not detected 1: The tracking target is already detected
4	tracking	Integer value	Indicates the execution state of the tracking process. 0: The tracking process has stopped 1: The tracking process is being executed
5	lost	Integer value	Indicates the existence of LOST detection for the tracking target. 0: LOST not detected 1: LOST detected
6	angle	Integer value	Indicates the feasibility of executing the Angle command. 0: Angle request is possible 1: Angle request is not possible
7	preset	Integer value	Indicates the feasibility of execution of the Preset command (playback) for Home, Preset 1, and Preset 2 by delimiting with a comma. 0: Cannot be executed 1: Can be executed Example: Can be executed only for Home: 1,0,0 Can be executed only for Preset 2: 0,0,1

8	angle_type	Integer value	Indicates the type of the angle of view during automatic tracking execution. 0: Upper Body Shot 1: Full Body Shot 2: Full Shot 3: Control Off
9	target_position	Integer value	Indicates the coordinate information of the control center of the tracking target by delimiting with a comma. Example: X coordinate of the control center: 100 Y coordinate of the control center: 200 => 100,200
10	target_position_area	Integer value	Indicates the information about the region in which the position of the tracking target can be set. Example: X coordinate of the top left position of the region: 100 Y coordinate of the top left position of the region: 200 Width of the region information: 500 Height of the region information: 300 => 100,200,300,500
11	pan_tilt_limit	Integer value	Indicates the setting state of the Pan/Tilt range of motion by delimiting with a comma (up, down, left, right). 0: Release 1: Set Example: Set only the upper direction : 1,0,0,0 Set all direction : 1,1,1,1

3.8 Image

The Image command is used to acquire a frame image of camera images. The command format is set as binary data configured by a header including the tracking process information, and a data part in which Jpeg-format binary data is saved. The list of transmission parameters is as shown below.

Table 3.8-1 List of Transmission Parameters

Name	Usage	Type	Description
id	Mandatory	Integer value	This is the camera ID.

The reception response during a positive acknowledgment is set as binary data having the contents specified below. Note that when the camera ID is invalid, "nack", which indicates a negative acknowledgment is saved for a request corresponding to a camera ID with which either no communication is being performed, or the communication has been disrupted, and binary data is not saved.

Table 3.8-2 Reception Response Data Configuration

Name	Byte	Type	Description
Command information	32	ASCII	The type of command data and the command name are saved as "response,GetImage". "0" is saved in the region in which no string is saved.
Camera ID	2	ASCII	The information of IDs from "01" to "99" is saved.
Display magnification	3	ASCII	The magnification information [%] is saved as "000" to "100".
Tracking target rectangle information	32	ASCII	The rectangle information (X, Y coordinates, width, height) of the tracking target is saved in the format described below. "0" is saved in the region in which no string is saved. Example: 100,200,300,600 Note that when the rectangle information does not exist on the process, "0" is saved for each parameter.
Tracking region rectangle information	32	ASCII	The rectangle information (X, Y coordinates, width, height) of the tracking region is saved in the format described below. "0" is saved in the region in which no string is saved. Example: 1000,250,800,600 Note that when the rectangle information does not exist on the process, "0" is saved for each parameter.
Facial detection rectangle information	32	ASCII	The rectangle information (X, Y coordinates, width, height) of the detected face is saved in the format described below. "0" is saved in the region in which no string is saved. Example: 100,200,80,80
Upper body detection rectangle information	32	ASCII	The rectangle information (X, Y coordinates, width, height) of the detected upper body is saved in the format described below. "0" is

			saved in the region in which no string is saved. Example: 200,200,160,160
Frame image	Variable	Binary	The JPG binary of the frame image is saved.

3.9 Tracking Control

The Tracking Control command is used to enable or disable the tracking process.

The list of transmission parameters is as shown below.

Table 3.9-1 List of Transmission Parameters

Name	Usage	Type	Description
id	Mandatory	Integer value	This is the camera ID.
enable	Mandatory	String	<p>Either on or off is saved. The processing contents during parameter setting are same as those described below:</p> <p>For "on"</p> <ul style="list-style-type: none"> • Camera Setting: detection = auto • Tracking: process = start <p>For "off"</p> <ul style="list-style-type: none"> • Camera Setting: detection = manual • Tracking: process = stop

The reception response is saved as either "ack", which indicates a positive acknowledgment, or "nack", which indicates a negative acknowledgment.

3.10 Camera Control View

The Camera Control View command is used for starting or stopping communication with the target camera, and for changing the screen display content of the tracking software. The list of transmission parameters is as shown below.

This command can be used only when the tracking software is a native application.

Table 3.10-1 List of Transmission Parameters

Name	Usage	Type	Description
id	Mandatory	Integer value	This is the camera ID.
control	Mandatory	String	<p>Either start or stop is saved.</p> <p>The process for starting communication with the camera is executed when "start" is specified, and the Camera View screen of the camera is displayed when the process is successful. If the process fails, the screen display is not updated.</p> <p>The process for stopping communication with the camera is executed when "stop" is specified, and the Camera Select screen is displayed when the process is successful. If the process fails, the screen display is not updated.</p>

The reception response is saved as either "ack", which indicates a positive acknowledgment, or "nack", which indicates a negative acknowledgment.

3.11 Register Scene File

The Register Scene File command is used to register a new scene file, or perform overwrite update of an existing scene file.

This command can be executed by posting the scene file to the URL specified below.

http://[IP Address]:[portNo]/cgi-bin/auto_tracking?cmd=RegisterSceneFile

Therefore, the scene file must be transmitted as multi-part data such as that illustrated below.

-----8d3439d84d3f4b0

Content-Disposition: form-data; name="file"; filename="sample.scn"

Content-Type: application/octet-stream

(File content)

-----8d3439d84d3f4b0--

Note that the reception response is saved as either "ack", which indicates a positive acknowledgment, or "nack", which indicates a negative acknowledgment.

3.12 Get Face Recognition

The Get Face Recognition command is used to acquire the list of face recognition information corresponding to the page no., search string, and number of elements per page. The list of transmission parameters is as shown below.

Table 3.12-1 List of Transmission Parameters

Name	Usage	Type	Description
page	Mandatory	Integer value	This is the specified page no.
query	Optional	String	This is the search string.
data_num	Mandatory	Integer value	This is the specified number of elements per page.

The reception response is saved as either "ack", which indicates a positive acknowledgment, or "nack", which indicates a negative acknowledgment.

The reception response parameters are specified as below.

data_list:[1],page_num:[2]

The list information is saved in the below-mentioned format at the locations corresponding to the numbers enclosed within "[]". Note that when the specified parameter is invalid, "nack", which indicates a negative acknowledgment, is saved, and the response parameter described above is not saved.

Table 3.12-2 Reception Response Data Configuration

No.	Name	Type	Description
1	data_list	List information	<p>The face recognition information corresponding to the specified parameters is saved in the list format shown below. (Enclose the entire list between "[" and "]", each record between "{" and "}", and express the information of each field of the record as [Field name]:[Field value].)</p> <p>Example: data_list:[{id:1,target_name:"Target001",face_contents:"[*"]},{id:2,target_name:"Target002",face_contents:"[*"]},{id:3,target_name:"Target003",face_contents:"[*"]}]</p> <p>* This information is obtained by converting the JPEG binary of the face image data that is the source of the face recognition information into a BASE 64 string.</p>
2	page_num	Integer value	This is the total number of pages of list information.

3.13 Edit Face Recognition

The Edit Face Recognition command is used to edit the face recognition information (the `m_face_recognition` table on the database) that exists in the system. The list of transmission parameters is as shown below.

Table 3.13-1 List of Transmission Parameters

Name	Usage	Type	Description
method	Mandatory	String	The following values are saved depending on the contents of the editing operation: - Add: add - Update: edit - Delete: remove
id	Mandatory	Integer value	This parameter is mandatory for Update and Delete. Set the identification ID of the target record.
target_name	Mandatory	String	This parameter is mandatory for Add and Update. Set the target name of the target record.
face_contents	Mandatory	String	This parameter is mandatory for Add and Update. Set the information obtained by converting the JPEG binary of the face image data of the target record into a BASE 64 string.

The reception response is saved as either "ack", which indicates a positive acknowledgment, or "nack", which indicates a negative acknowledgment.

The reception response parameters are specified as below.

message:[1]

The list information is saved in the below-mentioned format at the locations corresponding to the numbers enclosed within "[]".

Table 3.13-2 Reception Response Data Configuration

No.	Name	Type	Description
1	message	String	When the process is successful (ack), "OK" is saved and when the process fails (nack), the cause of failure of the process is saved as a string.

3.14 Clip Face Image

The Clip Face Image command is used for extraction of face image data from a JPEG-format input image.

This command can be executed by posting the input image to the URL specified below.

http://[IP Address]:[portNo]/cgi-bin/auto_tracking?cmd=ClipFacelImage

Therefore, the input image must be transmitted as multi-part data such as that illustrated below.

-----8d3439d84d3f4b0

Content-Disposition: form-data; name="file"; filename="input.jpg"

Content-Type: application/octet-stream

(File content)

-----8d3439d84d3f4b0--

Note that the reception response is saved as either "ack", which indicates a positive acknowledgment, or "nack", which indicates a negative acknowledgment.

The reception response parameters are specified as below.

face_contents:[1]

The extracted face image data is saved in the below-mentioned format at the locations corresponding to the numbers enclosed within "[]". Note that when the input image data is invalid, or it is not possible to extract the face image, "nack", which indicates a negative acknowledgment, is saved, and the response parameter described above is not saved.

Table 3.14-1 Reception Response Data Configuration

No.	Name	Type	Description
1	face_contents	String	The information obtained by converting JPEG binary of the face image data into a BASE 64 string is saved.

4 Processing of Error Commands

"nack", which indicates a negative acknowledgment, must be saved in the reception response to the transmission of all error commands that are not specified in 3 Details of Commands.

Opis predmetu zákazky

Predmet zákazky:

Systém riadenia a ovládania prenosu video-mítingov - 36

Technická špecifikácia:

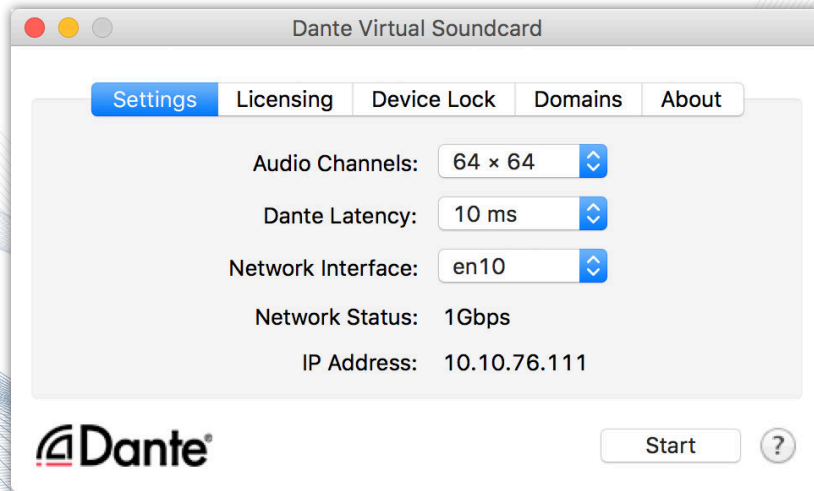
Otvorený systém riadenia a ovládania digitálnych technológií pre zabezpečenie prenosu video konferenčných mítingov a vzdelávacích kurzov prostredníctvom MS Teams	
Snímacie zariadenie s pohyblivým sledovaním prezentujúceho	<p>1/2.3-Type MOS motorizovaný objektív: min. 22x zoom, F1.6 to F4.3 Inteligentné zväčšenie min. 30-násobne a 1,4-násobný digitálny predlžovač HDMI video výstup k nahrávaniu zabudovanému na USB a microSD kartu PoE + pre napájanie, zvuk a video s veľmi nízkou latenciou zaznamenávanie a ovládanie pomocou jediného kábla rozsah natáčania $\pm 175^\circ$ a rozsah naklonenia -30° až $+90^\circ$ vstavaný kodér H.264 / MJPEG pre min. 7 kanálov kódovania až 25 Mb / s. s podporovaným hardvérovým alebo softvérovým dekodérom sériová kompatibilita RS-422, podpora NDI/HX Virtuálny ovládač USB PTZ Dodanie vrátane kabeláže, inštalácie a konfigurácie</p>
Riadiaci systém so systémom automatického sledovania prezentujúceho	<p>CPU: min. Core i7-4710MQ (2.50 GHz) RAM: min. 8 GB obrazovka: min. 1920 x 1080 a viac GPU: min. NVIDIA GeForce GTX 1050T, NVIDIA Quadro P2000 alebo NVIDIA GeForce RTX 2060 detekcia pohybu, rozpoznávanie tváre a učenie sa pre na vysoko presné automatické sledovanie s minimálnou chybou sledovania otvorené API</p> <p>Menežovateľný gigabitový prepínač s PoE + so SFP MSTP / RSTP / STP - VLAN, súkromná VLAN, hlasová VLAN - agregácia liniek - DHCP Snooping, IGMP Snooping - TACACS +, RADIUS, 802.1X, MAC Filtrovanie, ACL, - DiffServ, CoS - statické smerovanie - funkčnosť servera DHCP Dodanie vrátane kabeláže, inštalácie, konfigurácie a integrácie so zariadeniami v miestnosti</p>
Audio systém	<p>lineárne pole mikrofónov technológia smerovania na snímanie zvuku kdekoľvek v miestnosti technológia automatického sústredenia automatické miešanie, potlačenie akustickej ozveny, redukcia šumu a automatické riadenie zosilnenia PoE napájanie</p>

	Dante & AES67 montáž na strop 2.1 Soundbar Integrated subwoofer HDMI (ARC with CEC) vstup optický & koaxiálny vstup (SPDIF) min. 2 x 15 W a 1x 30 W Dodanie vrátane inštalácie, parametrizácie, integrácie s existujúcimi zariadeniami v miestnosti, doprava
--	---

Dante

VIRTUAL SOUND CARD

Digital Media Networking Perfected



Digital Audio Networking Has Never Been Easier

Dante Virtual Soundcard is a software application that turns your PC or Mac into a Dante-enabled device, allowing Dante audio traffic to be transmitted and received between other Dante-enabled devices using the standard Ethernet port. No additional hardware is required, and that means significant cost savings.

Easy to set up and use

Dante Virtual Soundcard is simple to set up and use on a computer and can be ready only minutes after downloading. It is the software implementation of Audinate's patent-pending Dante™ audio transport, a flexible Internet Protocol (IP) and Ethernet-based digital AV network technology that provides unprecedented flexibility, and eliminates the need for bulky cables that provide point-to-point wiring in analog AV installations.

Using Dante Virtual Soundcard in Applications

Whether in an installed location or a live sound event, a Dante network coupled with Dante Virtual Soundcard creates a powerful audio distribution and recording solution with incredible ease-of-use, giving users the ability to record and playback up to 64x64 channels of audio using a standard computer*. Dante Virtual Soundcard can be used for recording live events such as concerts, worship services, conference room meetings, corporate events, courtroom minutes, government proceedings and more.

Dante Virtual Soundcard is designed to work with popular Digital Audio Workstations (DAWs) such as Nuendo®, Cubase®, Reaper®, and Logic®, as well as consumer applications like iTunes®, Windows Media Player® and Skype®. Dante Virtual Soundcard appears on computers as an ordinary Core Audio, ASIO or WDM device, no special settings are required.

Audinate

MEDIA NETWORKING TECHNOLOGY

FEATURES

- ▶ **Standard sound device:** Appears as a standard ASIO or WDM Sound device on Windows, and as a Core Audio sound device on macOS with no additional hardware or software required
- ▶ **Intuitive interface:** Simple to set up, easy to control. Even with the DVS Control Panel closed, Dante Virtual Soundcard remains running as a background service until it is proactively switched off
- ▶ **Dante synchronization:** Dante uses audio-independent clocking and the IEEE1588 precision time standard to guarantee superb performance
- ▶ **Supports 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz† and 192kHz† sample rates***
- ▶ **Supports sample rate pull-up / down on ASIO and Core Audio**
- ▶ **Supports 16, 24 and 32-bit audio**
- ▶ **Flexibility:** Dante easily integrates into existing network infrastructure, and automatically discovers other Dante-enabled devices on the network
- ▶ **Configurable latency:** Latency can be set by the user to meet the needs of the individual computers and networks
- ▶ **Device lock:** Lock Dante Virtual Soundcard with a PIN to prevent unauthorised access
- ▶ **DDM Ready:** Supports Dante Domain Manager

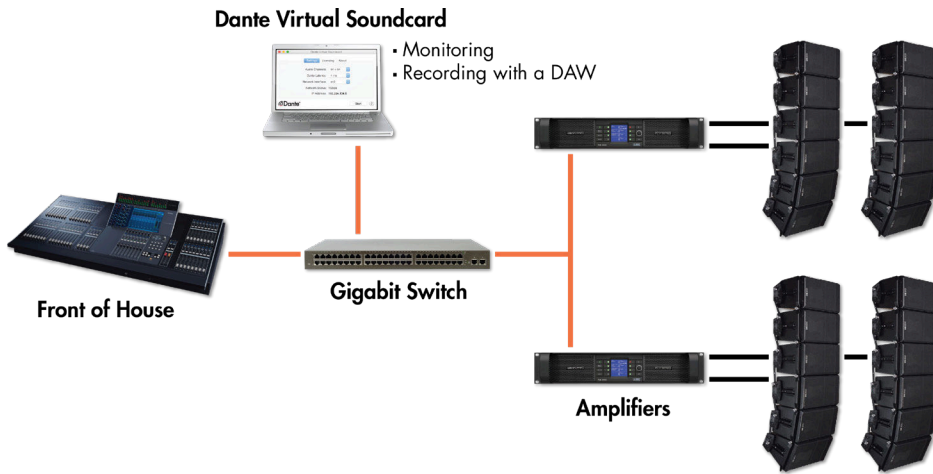
BENEFITS

- ▶ Instantly turns your computer into a Dante-enabled audio device
- ▶ Works like a standard soundcard
- ▶ No need to purchase additional hardware, uses existing Ethernet port
- ▶ Works seamlessly with other Dante-enabled devices on a network
- ▶ Up to 64x64 audio channels @ 44.1/48kHz (up to 32x32 @ 88.2/96kHz, or up to 8x8 @ 176.4/192kHz)**
- ▶ Simple and intuitive GUI
- ▶ Supports Windows and macOS

* Maximum performance at 176.4kHz and 192kHz requires a modern, dedicated computer, specifically tuned for processing high-quality audio.

** Assumes a 1Gbps network.

† not supported on WDM.



Dante Virtual Soundcard in a network setup: In the diagram above, a laptop running Dante Virtual Soundcard and a popular DAW is being used to monitor and record audio transmitted from a FOH console to speaker amplifiers using Dante networking.

SPECIFICATIONS

General

Processor	Quad core CPU
Memory	4 Gbyte of RAM
Network	<ul style="list-style-type: none"> ▶ Standard wired Ethernet network interface (100Mbps or Gigabit) ▶ A Gigabit (1000Mbps) interface is required for channel counts above 32x32 @48kHz or 16x16 @ 96kHz ▶ Wireless LAN (Wi-Fi) Ethernet interfaces are not supported
Storage/Disk	<ul style="list-style-type: none"> ▶ High transfer rates are required for recording and playing back large numbers of audio tracks to and from a hard disk ▶ Disk speeds of 7200rpm and above are recommended for 16 or more channels of record/playback from disk ▶ External discs connected via IEEE1394 (Firewire) are recommended for large track counts

Windows

Operating System	Refer to audinate.com
Audio Application	Audio applications must support either ASIO or WDM

macOS

Operating System	Refer to audinate.com
Audio Application	Any audio application using the standard Core Audio interface to a soundcard

Part Number

DVS-TK-001

APPLICATIONS

- ▶ Capture and record high quality multitrack audio distributed over Ethernet directly to your computer
- ▶ Mix and produce tracks using popular third-party DAWs
- ▶ Play audio over the network from popular applications such as iTunes and Windows Media Player
- ▶ Monitor audio on the network from a standard computer

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Príloha č. 2 Kúpnej zmluvy: Cenová ponuka

Predmet zákazky:

Systém riadenia a ovládania prenosu video-mítingov - 36

Otvorený systém riadenia a ovládania digitálnych technológií pre zabezpečenie prenosu video konferenčných mítingov a vzdelávacích kurzov prostredníctvom MS Teams					
	Technická špecifikácia	Výrobca, typové označenie	Počet	MJ	Cena bez DPH
Snímacie zariadenie s pohyblivým sledovaním prezentujúceho	1/2.3-Type MOS motorizovaný objektív: min. 22x zoom, F1.6 to F4.3 Inteligentné zväčšenie min. 30-násobne a 1,4-násobný digitálny predlžovač HDMI video výstup k nahrávaniu zabudovanému na USB a microSD karu PoE + pre napájanie, zvuk a video s veľmi nízkou latenciou zaznamenávanie a ovládanie pomocou jediného kábla rozsah natáčania ± 175 ° a rozsah naklonenia -30 ° až + 90 ° vstavaný kódér H.264 / MJPEG pre min. 7 kanálov kódovania až 25 Mb / s. s podporovaným hardvérovým alebo softvérovým dekodérom sériová kompatibilita RS-422, podpora NDI/HX Virtuálny ovládač USB PTZ Dodanie vrátane kabeláže, inštalácie a konfigurácie	Panasonic AW-HN38HW	1	ks	2 750,00 €
Riadiaci systém so systémom automatického sledovania prezentujúceho	CPU: min. Core i7-4710MQ (2.50 GHz) RAM: min. 8 GB obrazovka: min. 1920 x 1080 a viac GPU: min. NVIDIA GeForce GTX 1050T, NVIDIA Quadro P2000 alebo NVIDIA GeForce RTX 2060 detekcia pohybu, rozpoznávanie tváre a učenie sa pre na vysoko presné automatické sledovanie s minimálnou chybou sledovania otvorené API Pripojenie rozhrania Dante do PC, SW Menežovateľný gigabitový prepínač s PoE + so SFP MSTP / RSTP / STP - VLAN, súkromná VLAN, hlasová VLAN - agregácia liniek - DHCP Snooping, IGMP Snooping - TACACS +, RADIUS, 802.1X, MAC Filtrovanie, ACL, - DiffServ, CoS - statické smerovanie - funkčnosť servera DHCP Dodanie vrátane kabeláže, inštalácie, konfigurácie a integrácie so zariadeniami v miestnosti	HP NTB Pavilion Gaming 15-dk1008nc;15.6" FHD AG;16GB DDR4;i7-10750H;256GB SSD+1TB 7200;GeForce GTX 1660Ti;Win10;black Software: Panasonic AW-SF100 Z, PTZ Virtual USB Driver, PTZ Control Center Software: Audinate Dante Virtual Soundcard Cisco C1000-8P-2G-L	1	ks	1 195,00 €
			1	ks	490,00 €
			1	ks	60,00 €
			1	ks	490,00 €
Audio systém	líneárne pole mikrofónov technológia smerovania na snímanie zvuku kdekoľvek v miestnosti technológia automatického sústredenia automatické miešanie, potlačenie akustickej ozveny, redukcia šumu a automatické riadenie zosilnenia PoE napájanie Dante & AES67 montáž na strop Prevodník DANTE 2.1 Soundbar Integrated subwoofer HDMI (ARC with CEC) vstup optický & koaxiálny vstup (SPDIF) min. 2 x 15 W a 1x 30 W Dodanie vrátane inštalácie, parametrizácie, integrácie s existujúcimi zariadeniami v miestnosti, doprava	Shure MXA710 Audinate AVIO 0x1 Audac IMEO1	1	ks	2 370,00 €
			1	ks	110,00 €
			1	ks	380,00 €
Spolu bez DPH:					7 845,00 €
DPH 20%:					1 569,00 €
Spolu s DPH:					9 414,00 €



The bridge to possible

[Data sheet](#)
Cisco public

Cisco Catalyst 1000 Series Switches

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Product overview

Cisco® Catalyst® 1000 Series Switches are fixed managed Gigabit Ethernet and Fast Ethernet enterprise-class Layer 2 switches designed for small businesses and branch offices. These are simple, flexible and secure switches ideal for out-of-the-wiring-closet and critical Internet of Things (IoT) deployments. Cisco® Catalyst® 1000 operate on Cisco IOS® Software and support simple device management and network management via a Command-Line Interface (CLI) as well as an on-box web UI. These switches deliver enhanced network security, network reliability, and operational efficiency for small organizations.

Product highlights

Cisco Catalyst 1000 Series Switches feature:

- 8, 16, 24, or 48 Gigabit Ethernet and 24, 48 port Fast Ethernet data or PoE+ ports with line-rate forwarding
- 2 or 4 fixed 1 Gigabit Ethernet Small Form-Factor Pluggable (SFP)/RJ 45 Combo uplinks (8 Port models only) or 4 fixed 10 Gigabit Ethernet Enhanced SFP (SFP+) uplinks on the Gigabit Ethernet models and 4 fixed 1 Gigabit Ethernet Small Form-Factor Pluggable (SFP) and 2 RJ 45 Combo uplinks on the Fast Ethernet models
- Perpetual PoE+ support with a power budget of up to 740W
- CLI and/or intuitive web UI manageability options
- Network monitoring through sampled flow (sFlow)
- Security with 802.1X support for connected devices, Switched Port Analyzer (SPAN), and Bridge Protocol Data Unit (BPDU) Guard
- Compact fanless models available with a depth of less than 13 inches (33 cm)
- Device management support with over-the-air access via Bluetooth, Simple Network Management Protocol (SNMP), RJ-45, or USB console access
- Reliability with a higher Mean Time Between Failures (MTBF) and an Enhanced Limited Lifetime Warranty support (E-LLW)

Switch models and configurations

Cisco Catalyst 1000 Series Switches include a single fixed power supply. Table 1 shows configuration information.

Table 1. Switch configurations

Product ID*	Gigabit Ethernet / FE ports	Uplink interfaces	PoE+power budget	Fanless	Dimensions (WxDxH in inches)	Weight (kg)
C1000-8T-2G-L	8 10/100/1000 RJ45 Data	2 SFP/ RJ-45 combo	-	Y	10.56 x 7.28 x 1.73	1.80
C1000-8T-E-2G-L	8 10/100/1000 RJ45 Data	2 SFP/ RJ-45 combo	-	Y	10.56 x 7.28 x 1.73	1.55

Product ID*	Gigabit Ethernet / FE ports	Uplink interfaces	PoE+power budget	Fanless	Dimensions (WxDxH in inches)	Weight (kg)
C1000-8P-2G-L	8 10/100/1000 RJ45 PoE+	2 SFP/ RJ-45 combo	67W	Y	10.56 x 12.73 x 1.73	1.55
C1000-8P-E-2G-L	8 10/100/1000 RJ45 PoE+	2 SFP/ RJ-45 combo	67W	Y	10.56 x 7.28 x 1.73	1.55
C1000-8FP-2G-L	8 10/100/1000 RJ45 PoE+	2 SFP/ RJ-45 combo	120W	Y	10.56 x 12.73 x 1.73	2.70
C1000-8FP-E-2G-L	8 10/100/1000 RJ45 PoE+	2 SFP/ RJ-45 combo	120W	Y	10.56 x 7.28 x 1.73	2.70
C1000-16T-2G-L	16 10/100/1000 RJ45 Data	2 SFP	-	Y	10.56 x 10.69 x 1.73	1.78
C1000-16T-E-2G-L	16 10/100/1000 RJ45 Data	2 SFP	-	Y	10.56 x 8.26x 1.73	1.42
C1000-16P-2G-L	16 10/100/1000 RJ45 PoE+	2 SFP	120W	Y	10.56 x 11.69 x 1.73	2.38
C1000-16P-E-2G-L	16 10/100/1000 RJ45 PoE+	2 SFP	120W	Y	10.56 x 8.26x 1.73	1.42
C1000-16FP-2G-L	16 10/100/1000 RJ45 PoE+	2 SFP	240W	Y	10.56 x 12.14 x 1.73	2.49
C1000-24T-4G-L	24 10/100/1000 RJ45 Data	4 SFP	-	Y	17.48 x 9.45 x 1.73	2.63
C1000-24P-4G-L	24 10/100/1000 RJ45 PoE+	4 SFP	195W	Y	17.48 x 11.76 x 1.73	3.53
C1000-24FP-4G-L	24 10/100/1000 RJ45 PoE+	4 SFP	370W	N	17.48 x 13.59 x 1.73	4.6
C1000-48T-4G-L	48 10/100/1000 RJ45 Data	4 SFP	-	N	17.48 x 10.73 x 1.73	3.95
C1000-48P-4G-L	48 10/100/1000 RJ45 PoE+	4 SFP	370W	N	17.48 x 13.78 x 1.73	5.43
C1000-48FP-4G-L	48 10/100/1000 RJ45 PoE+	4 SFP	740W	N	17.48 x 13.78 x 1.73	5.82
C1000-24T-4X-L	24 10/100/1000 RJ45 Data	4 SFP+	-	Y	17.48 x 9.45 x 1.73	2.78
C1000-24P-4X-L	24 10/100/1000 RJ45 PoE+	4 SFP+	195W	Y	17.48 x 11.76 x 1.73	3.68
C1000-24FP-4X-L	24 10/100/1000 RJ45 PoE+	4 SFP+	370W	N	17.48 x 13.59 x 1.73	4.6
C1000-48T-4X-L	48 10/100/1000 RJ45 Data	4 SFP+	-	N	17.48 x 10.73 x 1.73	3.95

Product ID*	Gigabit Ethernet / FE ports	Uplink interfaces	PoE+power budget	Fanless	Dimensions (WxDxH in inches)	Weight (kg)
C1000-48P-4X-L	48 10/100/1000 RJ45 PoE+	4 SFP+	370W	N	17.48 x 13.78 x 1.73	5.43
C1000-48FP-4X-L	48 10/100/1000 RJ45 PoE+	4 SFP+	740W	N	17.48 x 13.78 x 1.73	5.82
C1000FE-24T-4G-L	24 10/100 RJ45 Data	2 SFP/ RJ-45 combo and 2 SFP	-	Y	17.32 x 11.34 x 1.73	3.56
C1000FE-24P-4G-L	24 10/100 RJ45 PoE+	2 SFP/ RJ-45 combo and 2 SFP	195W	Y	17.48 x 13.78 x 1.73	4.52
C1000FE-48T-4G-L	48 10/100 RJ45 Data	2 SFP/ RJ-45 combo and 2 SFP	-	N	17.32 x 11.34 x 1.73	3.97
C1000FE-48P-4G-L	48 10/100 RJ45 PoE+	2 SFP/ RJ-45 combo and 2 SFP	370W	N	17.48 x 13.78 x 1.73	5.46

*Please refer to local price lists for product SKUs available in the region

Software

The software features supported on the Cisco Catalyst 1000 Series can be found on Cisco Feature Navigator: <https://cfn.cloudapps.cisco.com/ITDIT/CFN/jsp/by-feature-technology.jsp>. **Catalyst 1000 series Fast Ethernet models are available with LAN Lite feature set only.** Fast ethernet models provide reduced functionality and scalability compared to the Gigabit ethernet models and are targeted for deployments with basic requirements.

Switch management

Cisco Catalyst 1000 Series Switches support the following on-device management features:

- **Web UI** via Cisco Configuration Professional. Cisco Configuration Professional provides a user interface for day-zero provisioning, which enables easy onboarding of the switch. It also has an intuitive dashboard for configuring, monitoring, and troubleshooting the switch (Figure 1). For more information, about Cisco Configuration Professional, refer to <https://www.cisco.com/c/en/us/products/cloud-systems-management/configuration-professional-catalyst/index.html>.

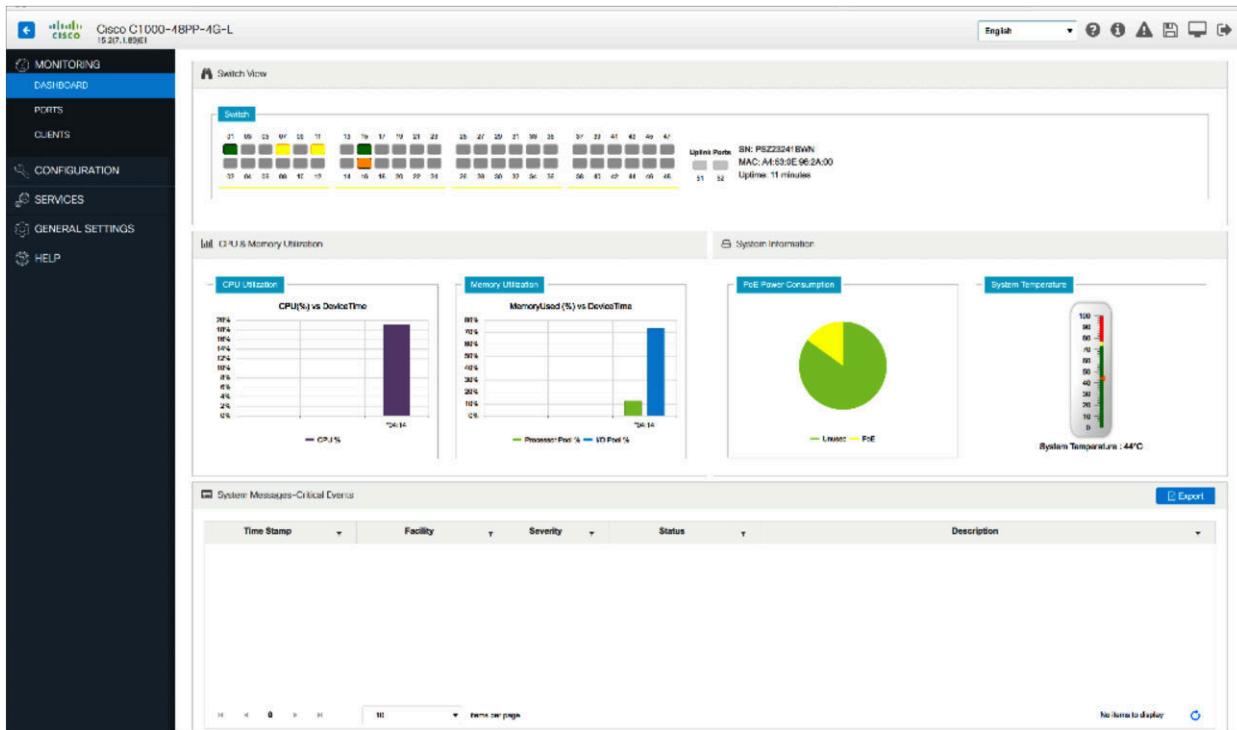


Figure 1.
Cisco Configuration Professional

- **Bluetooth** for over-the-air access. The switches support an external Bluetooth dongle that plugs into the USB port on the switch and allows a Bluetooth-based RF connection with external laptops and tablets (Figure 2). Laptops and tablets can access the switch CLI using a Telnet or Secure Shell (SSH) client over Bluetooth. The GUI can be accessed over Bluetooth with a browser.



Figure 2.
Over-the-air switch access using Bluetooth

- Single IP Management is available on the Cisco Catalyst 1000 Series switches. The uplink ports can be used to connect up to eight switches in a single stack and manage them via a single IP address to ease the network management activities like configurations and troubleshooting. This feature is only available on the Gigabit ethernet models

Network management

The Cisco Catalyst 1000 Series Switches offer a superior CLI for detailed configuration and administration.

Intelligent PoE+

Cisco Catalyst 1000 Series Switches support both IEEE 802.3af PoE and IEEE 802.3at PoE+ (up to 30W per port) to deliver a lower total cost of ownership for deployments that incorporate Cisco IP phones, Cisco Aironet® and Catalyst wireless access points, or other standards-compliant PoE and PoE+ end devices. PoE removes the need to supply wall power to PoE-enabled devices and eliminates the cost of adding electrical cabling and circuits that would otherwise be necessary in IP phone and WLAN deployments.

The PoE power allocation in the Cisco Catalyst 1000 Series Switches is dynamic, and power mapping scales up to a maximum of 740W of PoE+ power. Intelligent power management allows flexible power allocation across all ports. With Perpetual PoE, the PoE+ power is maintained during a switch reload. This is important for critical endpoints such as medical devices and for IoT endpoints such as PoE-powered lights, so that there is no disruption during a switch reboot.

Network security

Cisco Catalyst 1000 Series Switches provide a range of security features to limit access to the network and mitigate threats, including:

- **Comprehensive 802.1X** features to control access to the network, including flexible authentication, 802.1X monitor mode, and RADIUS change of authorization.
- **802.1X support with Network Edge Access Topology (NEAT)**, which extends identity authentication to areas outside the wiring closet (such as conference rooms).
- **IEEE 802.1X user distribution**, which enables you to load-balance users with the same group name across multiple different VLANs.
- **Ability to disable per-VLAN MAC learning** to allow you to manage the available MAC address table space by controlling which interface or VLANs learn MAC addresses.
- **Multidomain authentication** to allow an IP phone and a PC to authenticate on the same switch port while being placed on the appropriate voice and data VLANs.
- **Authentication, Authorization, and Accounting (AAA) command authorization** in PnP to enable seamless PnP provisioning.
- **Access Control Lists (ACLs)** for IPv6 and IPv4 security and Quality-of-Service (QoS) ACL elements (ACEs).
- **Port-based ACLs** for Layer 2 interfaces to allow security policies to be applied on individual switch ports.
- **SSH, Kerberos, and SNMP v3** to provide network security by encrypting administrator traffic during Telnet and SNMP sessions. SSH, Kerberos, and the cryptographic version of SNMP v3 require a special cryptographic software image because of U.S. export restrictions.
- **SPAN**, with bidirectional data support, to allow the Cisco Intrusion Detection System (IDS) to take action when an intruder is detected.
- **TACACS+ and RADIUS authentication** to facilitate centralized control of the switch and restrict unauthorized users from altering the configuration.
- **MAC address notification** to notify administrators about users added to or removed from the network.

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- **MAC Authentication Bypass (MAB) and WebAuth with downloadable ACLs** to allow per-user ACLs to be downloaded from the Cisco Identity Services Engine (ISE) as policy enforcement after authentication using MAB or web authentication in addition to IEEE 802.1X.
 - **Web authentication redirection** to enable networks to redirect guest users to the URL they had originally requested.
 - **Multilevel security on console access** to prevent unauthorized users from altering the switch configuration.
 - **BPDUGuard** to shut down Spanning Tree PortFast-enabled interfaces when BPDUs are received, to avoid accidental topology loops.
 - **IP Source Guard** to restrict IP traffic on nonrouted Layer 2 interfaces by filtering traffic based on the Dynamic Host Configuration Protocol (DHCP) snooping binding database or by manually configuring IP source bindings.
 - **SSH v2** to allow use of digital certificates for authentication between user and server.
 - **Spanning Tree Root Guard (STRG)** to prevent edge devices that are not in the network administrator's control from becoming Spanning Tree Protocol (STP) root nodes.
 - **Internet Group Management Protocol (IGMP) filtering** to provide multicast authentication by filtering out nonsubscribers and to limit the number of concurrent multicast streams available per port.
 - **Dynamic VLAN assignment** through implementation of VLAN Membership Policy Server client capability to provide flexibility in assigning ports to VLANs. Dynamic VLAN facilitates the fast assignment of IP addresses.

Redundancy and resiliency

Cisco Catalyst 1000 Series Switches offer a number of redundancy and resiliency features to prevent outages and help ensure that the network remains available:

- **IEEE 802.1s/w Rapid Spanning Tree Protocol (RSTP) and Multiple Spanning Tree Protocol (MSTP)** provide rapid spanning-tree convergence independent of spanning-tree timers and also offer the benefits of Layer 2 load balancing and distributed processing.
- **Per-VLAN Rapid Spanning Tree (PVRST+)** allows rapid spanning-tree reconvergence on a per-VLAN spanning-tree basis, without requiring the implementation of spanning-tree instances.
- **Switch-port auto-recovery (error disable)** automatically attempts to reactivate a link that is disabled because of a network error.
- **Link state tracking** binds the link state of multiple interfaces. The server Network Interface Cards (NICs) form a group to provide redundancy in the network. When the link is lost on the primary interface, network connectivity is transparently changed to the secondary interface.

Enhanced QoS

Cisco Catalyst 1000 Series Switches offer intelligent traffic management that keeps everything flowing smoothly. Flexible mechanisms for marking, classifying, and scheduling deliver superior performance for data, voice, and video traffic, all at wire speed. Primary QoS features include:

- Up to **eight egress queues** and two thresholds per port, supporting egress bandwidth control, shaping, and priority queuing so that high-priority packets are serviced ahead of other traffic.
- **Ingress policing** to allow the analysis of IP service levels for IP applications and services using active traffic monitoring – generating traffic in a continuous, reliable, and predictable manner – for measuring network performance. The number of ingress policers available per port is 64.
- **QoS through Differentiated Services Code Point (DSCP) mapping and filtering.**
- **QoS through traffic classification.**
- **Trust boundary** to configure device-based trust.
- **AutoQoS** to simplify the deployment of QoS features.
- **Shaped Round Robin (SRR)** scheduling and **Weighted Tail Drop (WTD)** congestion avoidance.
- **802.1p Class of Service (CoS)** classification, with marking and reclassification.

Energy management

Cisco Catalyst 1000 Series Switches offer a range of industry-leading features for energy efficiency and management:

- **IEEE 802.3az Energy Efficient Ethernet (EEE)** enables ports to dynamically sense idle periods between traffic bursts and quickly switch the interfaces into a low-power idle mode, reducing power consumption.
- **Loop detection** is a new method to detect network loops in the absence of STP.
- **Cisco AutoConfig** determines the level of network access provided to an endpoint based on the type of device. This feature also permits hard binding between the end device and the interface.
- **Cisco Auto SmartPorts** enables automatic configuration of switch ports as devices connect to the switch with settings optimized for the device type, resulting in zero-touch port-policy provisioning.
- **Cisco Smart Troubleshooting** is an extensive array of diagnostic commands and system health checks in the switch, including Smart Call Home. The Cisco Generic Online Diagnostics (GOLD) and online diagnostics on switches in live networks help predict and detect failures more quickly.

For more information about Cisco Catalyst SmartOperations, visit cisco.com/go/SmartOperations.

Operational simplicity

- **Cisco AutoSecure** provides a single-line CLI to enable baseline security features (port security, DHCP snooping, Dynamic Address Resolution Protocol [ARP] Inspection). This feature simplifies security configurations with a single touch.
- **DHCP** auto configuration of multiple switches through a boot server eases switch deployment.
- **Auto negotiation** on all ports automatically selects half- or full-duplex transmission mode to optimize bandwidth.
- **Dynamic Trunking Protocol (DTP)** facilitates dynamic trunk configuration across all switch ports.
- **Port Aggregation Protocol (PAgP)** automates the creation of Cisco Fast EtherChannel groups or Gigabit EtherChannel groups to link to another switch, router, or server.
- **Link Aggregation Control Protocol (LACP)** allows the creation of Ethernet channeling with devices that conform to IEEE 802.3ad. This feature is similar to Cisco EtherChannel technology and PAgP.
- **Automatic Media-Dependent Interface Crossover (MDIX)** automatically adjusts transmit and receive pairs if an incorrect cable type (crossover or straight-through) is installed.
- **Unidirectional Link Detection Protocol (UDLD)** and Aggressive UDLD allow unidirectional links caused by incorrect fiber-optic wiring or port faults to be detected and disabled on fiber-optic interfaces.
- **Local Proxy ARP** works in conjunction with Private VLAN Edge to minimize broadcasts and maximize available bandwidth.
- **VLAN1 minimization** allows VLAN1 to be disabled on any individual VLAN trunk.
- **IGMP** snooping for IPv4 and IPv6 and Multicast Listener Discovery (MLD) v1 and v2 snooping provide fast client joins and leaves of multicast streams and limit bandwidth-intensive video traffic to only the requesters.
- **Per-port broadcast, multicast, and unicast storm control** prevents faulty end stations from degrading overall system performance.
- **Voice VLAN** simplifies telephony installations by keeping voice traffic on a separate VLAN for easier administration and troubleshooting.
- **Cisco VLAN Trunking Protocol (VTP)** supports dynamic VLANs and dynamic trunk configuration across all switches.
- **Layer 2 trace route** eases troubleshooting by identifying the physical path that a packet takes from source to destination.
- **Trivial File Transfer Protocol (TFTP)** reduces the cost of administering software upgrades by downloading from a centralized location.
- **Network Time Protocol (NTP)** provides an accurate and consistent timestamp to all intranet switches.

Specifications

Product specifications (Table 2) apply to both PoE and non-PoE models.

Table 2. Specifications

	8-port models	16-port models	24-port models (1/10G uplinks)	48-port models (1/10G uplinks)
Console ports				
RJ-45 Ethernet	1	1	1	1
USB mini-B	1	1	1	1
USB-A port for storage and Bluetooth console	1	1	1	1
Memory and processor				
CPU	ARM v7 800 MHz	ARM v7 800 MHz	ARM v7 800 MHz	ARM v7 800 MHz
DRAM	512 MB	512 MB	512 MB	512 MB
Flash memory	256 MB	256 MB	256 MB	256 MB
Performance				
Forwarding bandwidth	10 Gbps	18 Gbps	FE: 6.4 Gbps 1G: 28 Gbps 10G: 64 Gbps	FE: 8.8 Gbps 1G: 52 Gbps 10G: 88Gbps
Switching bandwidth	20 Gbps	36 Gbps	FE: 12.8 Gbps 1G: 56 Gbps 10G: 128 Gbps	FE: 17.6 Gbps 1G: 104 Gbps 10G: 176 Gbps
Forwarding rate (64-byte L3 packets)	14.88 Mpps	26.78 Mpps	FE: 9.52 Mpps 1G: 41.67 Mpps 10G: 95.23 Mpps	FE: 13.09 Mpps 1G: 77.38 Mpps 10G: 130.94
MAC addresses	16000	16000	16000	16000
IPv4 unicast direct routes	542	542	542	542
IPv4 unicast indirect routes	256	256	256	256
IPv6 unicast direct routes	414	414	414	414
IPv6 unicast indirect routes	128	128	128	128

	8-port models	16-port models	24-port models (1/10G uplinks)	48-port models (1/10G uplinks)
IPv4 multicast routes and IGMP groups	1024	1024	1024	1024
IPv6 multicast groups	1024	1024	1024	1024
IPv4/MAC security ACEs	600	600	600 (FE: 384)	600 (FE: 384)
IPv6 security ACEs	600	600	600 (FE: 256)	600 (FE: 256)
Maximum active VLANs	256	256	256	256
VLAN IDs available	4094	4094	4094	4094
Maximum STP instances	64	64	64	64
Maximum SPAN sessions	4	4	4	4
MTU-L3 packet	9198 bytes	9198 bytes	9198 bytes	9198 bytes
Jumbo Ethernet frame	10,240 bytes	10,240 bytes	10,240 bytes	10,240 bytes
Dying Gasp	Yes	Yes	Yes (FE: No)	Yes (FE: No)
MTBF in hours (data)	2,171,669	2,165,105	2,026,793	1,452,667
MTBF in hours (PoE)	1,786,412, 1,706,649 (External PS)	706,983	698,220	856,329
MTBF in hours (Full PoE)	1,706,649	-	698,220	856,329
Environmental				
Operating temperature				
Sea level	-5 to 50 deg C*			
Up to 5,000ft (1500 m)	-5 to 45 deg C			
Upto 10,000 (3000 m)	-5 to 40 deg C			
Operating altitude	10,000 ft (3,000m)			
Operating relative humidity	5% to 90% at 40 deg C (non-condensing)			
Storage temperature	-13 to 158F (-25 to 70C)			

	8-port models	16-port models	24-port models (1/10G uplinks)	48-port models (1/10G uplinks)				
Storage altitude	15,000 ft (4500m)							
Storage relative humidit	5% to 95% at 65 deg C (non-condensing)							
*Note:	<ul style="list-style-type: none"> • 50C operation is supported for short term operation only; • When using C1000-8T-E-2G-L, C1000-8T-2G-L, C1000-8P-E-2G-L, C1000-8P-2G-L, C1000-8FP-E-2G-L, C1000-8FP-2G-L, C1000-16T-E-2G-L, C1000-16T-2G-L, C1000-16P-E-2G-L, C1000-16P-2G-L, C1000-16FP-2G-L, C1000-24T-4G-L, C1000-24P-4G-L with GLC-BX-U or GLC-BX-D SFP module, the thermal limitations are as follows: <ul style="list-style-type: none"> ◦ Up to 5,000 feet, the operation temperature should not exceed 45°C. ◦ Up to 10,000 feet, the operation temperature should not exceed 40°C. • When using C1000-24T-4X-L, C1000-24P-4X-L with SFP-10G-ER or SFP-10G-ER-S SFP+ module, the thermal limitations are as follows: <ul style="list-style-type: none"> ◦ Up to 5,000 feet, the operation temperature should not exceed 45°C. ◦ Up to 10,000 feet, the operation temperature should not exceed 40°C. • Minimum ambient temperature for cold start is at 0 deg C (32 deg F) 							
Electrical	Data	Data Ext. PS	Data	Data Ext. PS	Data	FE Data	Data	FE Data
Voltage (auto ranging)	110 to 220V AC in		110 to 220V AC in		110 to 220V AC in		110 to 220V AC in	
Frequency	50 to 60 Hz		50 to 60 Hz		50 to 60 Hz		50 to 60 Hz	
Current	0.13A to 0.22A	0.16A to 0.26A	0.16A to 0.26A	0.19A to 0.31A	0.20A to 0.33A	0.12A to 0.34A	0.29A to 0.48A	0.24A to 0.69A
Power rating (maximum consumption)	0.04 kVA	0.017 kVA	0.05 kVA	0.05 kVA	0.06 kVA	0.02 kVA	0.09 kVA	0.035 kVA
Electrical	PoE	PoE Ext. PS	PoE	PoE Ext. PS	PoE	FE PoE	PoE	FE PoE
Voltage (auto ranging)	110 to 220V AC in		110 to 220V AC in		110 to 220V AC in		110 to 220V AC in	
Frequency	50 to 60 Hz		50 to 60 Hz		50 to 60 Hz		50 to 60 Hz	
Current	0.22A to 0.27A	0.22A to 0.37A	0.24A to 0.28A	0.14A to 0.24A	0.37A to 0.64A	0.23A to 0.35A	0.37A to 0.64A	0.26A to 0.46A
Power rating (maximum consumption)	0.11 kVA	0.087 kVA	0.19 kVA	0.20 kVA	0.48 kVA	0.025 kVA	0.48 kVA	0.046 kVA
Electrical	Full PoE	Full PoE Ext. PS	Full PoE	Full PoE	Full PoE	Full PoE		
Voltage (auto ranging)	110 to 220V AC in		110 to 220V AC in		110 to 220V AC in		110 to 220V AC in	
Frequency	50 to 60 Hz		50 to 60 Hz		50 to 60 Hz		50 to 60 Hz	
Current	0.23A to 0.28A	0.15A to 0.2A	0.35A to 0.37A		0.29A to 0.48A		0.45A to 0.94A	
Power rating (maximum consumption)	0.15 kVA	0.15 kVA	0.45 kVA		0.8 kVA		0.95 kVA	

	8-port models		16-port models		24-port models (1/10G uplinks)		48-port models (1/10G uplinks)	
Power consumption (watts)	Data	Data Ext.PS	Data	Data Ext. PS	Data	FE Data	Data	FE Data
0% traffic	14.04	13.15	14.52	14.4	1G: 15.84	11.22	1G: 27.37	21.41
					10G: 18		10G: 29.4	
10% traffic	14.06	13.76	16.44	16.44	1G: 22.08	12.83	1G: 41.57	23.02
					10G: 24.48		10G: 42.28	
100% traffic	14.26	14	16.68	16.68	1G: 22.8	17.15	1G: 53.66	23.03
					10G: 25.68		10G: 54.73	
Weighted average	14.12	13.64	15.88	15.84	1G: 20.2	13.73	1G: 40.87	22.49
					10G: 22.7		10G: 42.1	
Power consumption (watts)	PoE	PoE Ext. PS	PoE	PoE Ext. PS	PoE	FE PoE	PoE	FE PoE
0% traffic	10.22	9.13	14.64	13.68	1G: 15.84	14.5	1G: 27.9	21.62
					10G: 18		10G: 28.0	
10% traffic	12.02	15.39	16.56	15.48	1G: 22.44	16.1	1G: 42.77	24.74
					10G: 24.72		10G: 42.73	
100% traffic	12.19	15.71	16.92	16.32	1G: 23.16	18.58	1G: 54.25	24.75
					10G: 25.68		10G: 54.49	

	8-port models		16-port models		24-port models (1/10G uplinks)		48-port models (1/10G uplinks)	
Weighted average	11.48	13.41	16.04	15.16	1G: 20.48	16.39	1G: 41.64	23.70
					10G: 22.8		10G: 41.74	
Power consumption (watts)	Full PoE	Full PoE Ext. PS	Full PoE		Full PoE		Full PoE	
0% traffic	13.44	14.3	14.4		1G: 18.36		1G: 30.61	
					10G: 19.68		10G: 30.91	
10% traffic	14.4	14.9	16.68		1G: 26.16		1G: 45.16	
					10G: 26.28		10G: 45.78	
100% traffic	14.52	15.7	16.8		1G: 35.4		1G: 61.66	
					10G: 36		10G: 62.26	
Weighted average	14.12	14.97	15.96		1G: 26.68		1G: 45.81	
					10G: 27.32		10G: 46.31	
<p>Note: The wattage rating on the power supply does not represent actual power draw. It indicates the maximum power draw possible by the power supply. This rating can be used for facility capacity planning. For PoE switches, cooling requirements are smaller than total power draw because a significant portion of the load is dissipated in the endpoints.</p>								
Acoustic noise (48-port PoE models only)								
Sound pressure (Typical)					C1000-24FP-4G-L, C1000-24FP-4X-L - 34.8 dB		C1000-48T-4G-L, C1000-48T-4X-L - 31.5 dB	
							C1000-48P-4G-L, C1000-48P-4X-L - 36.1 dB	
							C1000-48FP-4G-L C1000-48FP-4X-L - 47.6dB	
	<p>Note: Bystander positions operating mode at 77°F (25°C) ambient; All other models are fanless for silent operations</p>							

	8-port models	16-port models	24-port models (1/10G uplinks)	48-port models (1/10G uplinks)
Safety and compliance				
Safety	UL 60950-1 Second Edition, CAN/CSA-C22.2 No. 60950-1 Second Edition, EN 60950-1 Second Edition, IEC 60950-1 Second Edition, AS/NZS 60950-1, IEC 62368-1, UL 62368-1 GB 4943.1-2011			
EMC: Emissions	47CFR Part 15 Class A, AS/NZS CISPR32 Class A, CISPR32 Class A, EN55032 Class A, ICES-003 Class A, VCCI-CISPR32 Class A, EN61000-3-2, EN61000-3-3, KN32 Class A, CNS13438 Class A			
EMC: Immunity	EN55024 (including EN 61000-4-5), EN300386, KN35			
Environmental	Reduction of Hazardous Substances (RoHS) including Directive 2011/65/EU			
Telco	Common Language Equipment Identifier (CLEI) code			
U.S. government certifications	USGv6 and IPv6 Ready Logo			
Connectors and interfaces				
Ethernet interfaces	10BASE-T ports: RJ-45 connectors, 2-pair Category 3, 4, or 5 Unshielded Twisted Pair (UTP) cabling			
	100BASE-TX ports: RJ-45 connectors, 2-pair Category 5 UTP cabling			
	1000BASE-T ports: RJ-45 connectors, 4-pair Category 5 UTP cabling			
	1000BASE-T SFP-based ports: RJ-45 connectors, 4-pair Category 5 UTP cabling			
Indicator LEDs	Per-port status: link integrity, disabled, activity			
	System status: System			
Console cables	CAB-CONSOLE-RJ45 Console cable 6 ft. with RJ-45			
	CAB-CONSOLE-USB Console cable 6 ft. with USB Type A and mini-B connectors			
Power	Use the supplied AC power cord to connect the AC power connector to an AC power outlet Models have external power supply			

	8-port models	16-port models	24-port models (1/10G uplinks)	48-port models (1/10G uplinks)
Management				
	BRIDGE-MIB CISCO-CABLE-DIAG-MIB CISCO-CDP-MIB CISCO-CLUSTER-MIB CISCO-CONFIG-COPY-MIB CISCO-CONFIG-MAN-MIB CISCO-DHCP-SNOOPING-MIB CISCO-ENTITY-VENDORTYPE-OID-MIB CISCO-ENVMON-MIB CISCO-ERR-DISABLE-MIB CISCO-FLASH-MIB CISCO-FTP-CLIENT-MIB CISCO-IGMP-FILTER-MIB CISCO-IMAGE-MIB CISCO-IP-STAT-MIB CISCO-LAG-MIB CISCO-MAC-NOTIFICATION-MIB CISCO-MEMORY-POOL-MIB CISCO-PAGP-MIB CISCO-POE-EXTENSIONS-MIB	CISCO-PORT-QOS-MIB CISCO-PORT-SECURITY-MIB CISCO-PORT-STORM-CONTROL-MIB CISCO-PRODUCTS-MIB CISCO-PROCESS-MIB CISCO-RTTMON-MIB CISCO-SMI-MIB CISCO-STP-EXTENSIONS-MIB CISCO-SYSLOG-MIB CISCO-TC-MIB CISCO-TCP-MIB CISCO-UDLDP-MIB CISCO-VLAN-IFTABLE CISCO-VLAN-MEMBERSHIP-MIB CISCO-VTP-MIB ENTITY-MIB ETHERLIKE-MIB IEEE8021-PAE-MIB IEEE8023-LAG-MIB	IF-MIB INET-ADDRESS-MIB OLD-CISCO-CHASSIS-MIB OLD-CISCO-FLASH-MIB OLD-CISCO-INTERFACES-MIB OLD-CISCO-IP-MIB OLD-CISCO-SYS-MIB OLD-CISCO-TCP-MIB OLD-CISCO-TS-MIB RFC1213-MIB RMON-MIB RMON2-MIB SNMP-FRAMEWORK-MIB SNMP-MPD-MIB SNMP-NOTIFICATION-MIB SNMP-TARGET-MIB SNMPv2-MIB TCP-MIB UDP-MIB	
For an updated list of supported MIBs, refer to the MIB Locator at cisco.com/go/mibs .				

	8-port models	16-port models	24-port models (1/10G uplinks)	48-port models (1/10G uplinks)
Standards				
	IEEE 802.1D STP IEEE 802.1p CoS Prioritization IEEE 802.1Q VLAN IEEE 802.1s IEEE 802.1w IEEE 802.1X IEEE 802.1ab LLDP Bluetooth v4.0	IEEE 802.3ad IEEE 802.3af and IEEE 802.3at IEEE 802.3ah (100BASE-X single/multimode fiber only) IEEE 802.3x full duplex on 10BASE-T, 100BASE-TX, and 1000BASE-T ports IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX	IEEE 802.3ab 1000BASE-T IEEE 802.3z 1000BASE-X RMON I and II standards SNMP v1, v2c, and v3 IEEE 802.3az IEEE 802.3ae 10 Gigabit Ethernet IEEE 802.1ax	
RFC compliance				
	RFC 768 - UDP RFC 783 - TFTP RFC 791 - IP RFC 792 - ICMP RFC 793 - TCP RFC 826 - ARP RFC 854 - Telnet RFC 951 - Bootstrap Protocol (BOOTP) RFC 959 - FTP RFC 1112 - IP Multicast and IGMP RFC 1157 - SNMP v1 RFC 1166 - IP Addresses	RFC 1256 - ICMP Router Discovery RFC 1305 - NTP RFC 1492 - TACACS+ RFC 1493 - Bridge MIB RFC 1542 - BOOTP extensions RFC 1901 - SNMP v2C RFC 1902-1907 - SNMP v2 RFC 1981 - Maximum Transmission Unit (MTU) Path Discovery IPv6 RFC 2068 - HTTP RFC 2131 - DHCP RFC 2138 - RADIUS RFC 2233 - IF MIB v3		

Warranty

Cisco Catalyst 1000 Series Switches come with an Enhanced Limited Lifetime Warranty (E-LLW). The E-LLW provides the same terms as the Cisco standard limited lifetime warranty but adds next-business-day delivery of replacement hardware, where available, and 90 days of 8x5 Cisco Technical Assistance Center (TAC) support. Your formal warranty statement, including the warranty applicable to Cisco software, appears in the information packet that accompanies your Cisco product. We encourage you to review carefully the warranty statement shipped with your specific product before use.

Cisco reserves the right to refund the purchase price as its exclusive warranty remedy. For more information about warranty terms, visit <https://www.cisco.com/go/warranty> and see Table 3 below.

Table 3. Warranty information

Cisco enhanced limited lifetime hardware warranty	
Device covered	Applies to all Cisco Catalyst 1000 Series Switches
Warranty duration	As long as the original end user continues to own or use the product.
End-of-life policy	In the event of discontinuance of product manufacture, Cisco warranty support is limited to 5 years from the announcement of discontinuance.
Hardware replacement	Cisco or its service center will use commercially reasonable efforts to ship a Cisco Catalyst 1000 Series replacement part for next-business-day delivery, where available. Otherwise, a replacement will be shipped within 10 working days after the receipt of the RMA request. Actual delivery times might vary depending on customer location.
Effective date	Hardware warranty commences from the date of shipment to the customer (and in case of resale by a Cisco reseller, not more than 90 days after original shipment by Cisco).
TAC support	Cisco will provide, during the customer's local business hours, 8 hours per day, 5 days per week basic configuration, diagnosis, and troubleshooting of device-level problems for up to 90 days from the date of shipment of the originally purchased Cisco Catalyst 1000 Series product. This support does not include solution or network-level support beyond the specific device under consideration.
Cisco.com access	Warranty allows guest access only to Cisco.com.

Software policy

Customers are provided with maintenance updates and bug fixes designed to maintain the compliance of the software with published specifications, release notes, and industry standards as long as the original end user continues to own or use the product or up to one year from the end-of-sale date for this product, whichever occurs earlier.

This policy supersedes any previous warranty or software statement and is subject to change without notice.

Cisco Services

Successfully deploy, manage, and support Cisco Catalyst 1000 switches with a full life cycle of Cisco Services including implementation, optimization, technical, managed and training services. Our team of experts can help you speed deployment, reduce costs and minimize risk as you introduce new hardware, software and protocols into the network. As your trusted advisor, we help you achieve extraordinary business outcomes, minimize risk and disruption so you can anticipate change and pivot quickly, securely, and confidently.

Table 4. Technical Services

Cisco Technical Services
<p>Cisco Smart Net Total Care® Service</p> <ul style="list-style-type: none">• Around-the-clock, global access to the Cisco TAC• Unrestricted access to the extensive Cisco.com knowledge base and tools• NBD, 8x5x4, 24x7x4, and 24x7x2 advance hardware replacement and onsite parts replacement and installation available• Ongoing operating system software updates within the licensed feature set¹• Proactive diagnostics and real-time alerts on Smart Call Home-enabled devices
<p>Cisco Solution Support Service</p> <ul style="list-style-type: none">• Provides a team of experts who act as primary point of contact to deliver centralized support, including in multivendor network environments• Speed is paramount when problems arise, so we deliver on a 30-minute service level objective and prioritize Solution Support cases• Expert guidance helps to enhance IT operations with fewer outages and faster problem resolution while maximizing performance and reliability of Catalyst 1000 Series switches• We even look beyond identified problems and provide the necessary guidance needed to help you avoid any pitfalls before they can disrupt IT or your business
<p>Cisco Support Essentials Service</p> <ul style="list-style-type: none">• Callback support from Cisco Technical Assistance Center (TAC) engineers within one business day• 8 a.m. to 5 p.m. Next-Business-Day (8x5xNBD) hardware replacements• Ongoing operating system software updates within the licensed feature set¹• Access to the Cisco.com knowledge base and tools• Entitlement to smart capabilities

¹ Cisco operating system updates include the following: maintenance releases, minor updates, and major updates within the licensed feature set

[Learn more about available services.](#)

Accessories

Table 5 describes the available accessories.

Table 5. Accessories

Part number	Description	Compatibility
CAB-CONSOLE-RJ45	Console Cable 6 Feet with RJ-45	All models
CAB-CONSOLE-USB	Console Cable 6 Feet with USB Type A and mini-B Connectors	All models

Part number	Description	Compatibility
PWR-CLP	Power Cable Restraining Clip	All models
Cisco Catalyst 1000 Series rack mounting kit		
RCKMNT-1RU-2KX=	Rackmount kit for 1 RU for C1000, 2960-X and 2960-XR (19/23/24/etsi)	All 24/48 port models*
RCKMNT-19-CMPCT=	19" Rack Mount bracket for C1000, 3560-CX and 2960CX	All 8/16 port models
RCKMNT-23-CMPCT=	23" and 24" Rack Mount bracket for C1000, 3560-CX and 2960-CX	All 8/16 port models

*Only 24 and 48 port models include the 19" mounting brackets with the switch

Ordering information

Tables 6 and 7 list ordering information for the Cisco Catalyst 1000 Series Switches. To place an order, visit the Cisco Ordering homepage at

https://www.cisco.com/en/US/ordering/or13/or8/order_customer_help_how_to_order_listing.html.

Table 6. Cisco Catalyst 1000 Series Switches ordering information

Product number	Description
Cisco Catalyst 1000 Series Switches with 2x 1GSFP and RJ-45 combo uplinks	
C1000-8T-2G-L	8x 10/100/1000 Ethernet ports, 2x 1G SFP and RJ-45 combo uplinks
C1000-8T-E-2G-L	8x 10/100/1000 Ethernet ports, 2x 1G SFP and RJ-45 combo uplinks, with external PS
C1000-8P-2G-L	8x 10/100/1000 Ethernet PoE+ ports and 67W PoE budget, 2x 1G SFP and RJ-45 combo uplinks
C1000-8P-E-2G-L	8x 10/100/1000 Ethernet PoE+ ports and 67W PoE budget, 2x 1G SFP and RJ-45 combo uplinks, with external PS
C1000-8FP-2G-L	8x 10/100/1000 Ethernet PoE+ ports and 120W PoE budget, 2x 1G SFP and RJ-45 combo uplinks
C1000-8FP-E-2G-L	8x 10/100/1000 Ethernet PoE+ ports and 120W PoE budget, 2x 1G SFP and RJ-45 combo uplinks, with external PS
Cisco Catalyst 1000 Series Switches with 2x 1G SFP uplinks	
C1000-16T-2G-L	16x 10/100/1000 Ethernet ports, 2x 1G SFP uplinks
C1000-16T-E-2G-L	16x 10/100/1000 Ethernet ports, 2x 1G SFP uplinks with external PS
C1000-16P-2G-L	16x 10/100/1000 Ethernet PoE+ ports and 120W PoE budget, 2x 1G SFP uplinks
C1000-16P-E-2G-L	16x 10/100/1000 Ethernet PoE+ ports and 120W PoE budget, 2x 1G SFP uplinks with external PS
C1000-16FP-2G-L	16x 10/100/1000 Ethernet PoE+ ports and 240W PoE budget, 2x 1G SFP uplinks

Product number	Description
Cisco Catalyst 1000 Series Switches with 4x 1G SFP uplinks	
C1000-24T-4G-L	24x 10/100/1000 Ethernet ports, 4x 1G SFP uplinks
C1000-24P-4G-L	24x 10/100/1000 Ethernet PoE+ ports and 195W PoE budget, 4x 1G SFP uplinks
C1000-24FP-4G-L	24x 10/100/1000 Ethernet PoE+ ports and 370W PoE budget, 4x 1G SFP uplinks
C1000-48T-4G-L	48x 10/100/1000 Ethernet ports, 4x 1G SFP uplinks
C1000-48P-4G-L	48x 10/100/1000 Ethernet PoE+ and 370W PoE budget ports, 4x 1G SFP uplinks
C1000-48FP-4G-L	48x 10/100/1000 Ethernet PoE+ ports and 740W PoE budget, 4x 1G SFP uplinks
Cisco Catalyst 1000 Series Switches with 4x 10G SFP+ uplinks	
C1000-24T-4X-L	24x 10/100/1000 Ethernet ports, 4x 10G SFP+ uplinks
C1000-24P-4X-L	24x 10/100/1000 Ethernet PoE+ ports and 195W PoE budget, 4x 10G SFP+ uplinks
C1000-24FP-4X-L	24x 10/100/1000 Ethernet PoE+ ports and 370W PoE budget, 4x 10G SFP+ uplinks
C1000-48T-4X-L	48x 10/100/1000 Ethernet ports, 4x 10G SFP+ uplinks
C1000-48P-4X-L	48x 10/100/1000 Ethernet PoE+ ports and 370W PoE budget, 4x 10G SFP+ uplinks
C1000-48FP-4X-L	48x 10/100/1000 Ethernet PoE+ ports and 740W PoE budget, 4x 10G SFP+ uplinks
Cisco Catalyst 1000 Series Switches with 2x 1GSFP and RJ-45 combo uplinks and 2x 1G SFP uplinks	
C1000FE-24T-4G-L	24x 10/100 Ethernet ports, 2x 1GSFP and RJ-45 combo uplinks and 2x 1G SFP uplinks
C1000FE-24P-4G-L	24x 10/100 Ethernet PoE+ ports and 195W PoE budget, 2x 1GSFP and RJ-45 combo uplinks and 2x 1G SFP uplinks
C1000FE-48T-4G-L	48x 10/100 Ethernet ports, 2x 1GSFP and RJ-45 combo uplinks and 2x 1G SFP uplinks
C1000FE-48P-4G-L	48x 10/100 Ethernet PoE+ and 370W PoE budget ports, 2x 1GSFP and RJ-45 combo uplinks and 2x 1G SFP uplinks

Optics compatibility information

The Cisco Catalyst 1000 Series Switches support a wide range of optics. Because the list of supported optics is updated on a regular basis, consult the [Optics Compatibility](#) tables for compatibility information on supported transceivers.

Cisco environmental sustainability

Information about Cisco's environmental sustainability policies and initiatives for our products, solutions, operations, and extended operations or supply chain is provided in the "Environment Sustainability" section of Cisco's [Corporate Social Responsibility](#) (CSR) Report.

Reference links to information about key environmental sustainability topics (mentioned in the "Environment Sustainability" section of the CSR Report) are provided in the following table:

Sustainability topic	Reference
Information on product material content laws and regulations	Materials
Information on electronic waste laws and regulations, including products, batteries, and packaging	WEEE compliance

Cisco makes the packaging data available for informational purposes only. It may not reflect the most current legal developments, and Cisco does not represent, warrant, or guarantee that it is complete, accurate, or up to date. This information is subject to change without notice.

Cisco Capital

Flexible payment solutions to help you achieve your objectives

Cisco Capital makes it easier to get the right technology to achieve your objectives, enable business transformation and help you stay competitive. We can help you reduce the total cost of ownership, conserve capital, and accelerate growth. In more than 100 countries, our flexible payment solutions can help you acquire hardware, software, services and complementary third-party equipment in easy, predictable payments. [Learn more](#).

Contact Cisco

For more information about Cisco products, contact:

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[Worldwide Product Support](#).

Company website: [cisco.com](https://www.cisco.com).

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Singapore

Europe Headquarters
Cisco Systems International BV Amsterdam,
The Netherlands

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at <https://www.cisco.com/go/offices>.

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SHURE

PREMIUM AUDIO
FOR AV CONFERENCING
MICROFLEX® ADVANCE™

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Shure Acquisition Holdings, Inc. For additional information, see [shure.com/trademarks](https://www.shure.com/trademarks).

ADVANTAGES

AV conferencing has become an integral tool for business communication. But it's easy to forget that the majority of the content is actually carried by the audio, not the video. If the video fails during a videoconference, the meeting can go on virtually unimpeded. But if the audio fails, the meeting is over.

Since their introduction in 2016, Microflex® Advance™ Networked Array Microphones have come to be relied on to capture voice naturally, fit harmoniously with the room's appearance, and make it effortless to connect people for the world's leading enterprises. The platform includes advanced technology to provide outstanding sound quality, flexibility, and usability -- all without compromising the appearance of the room.

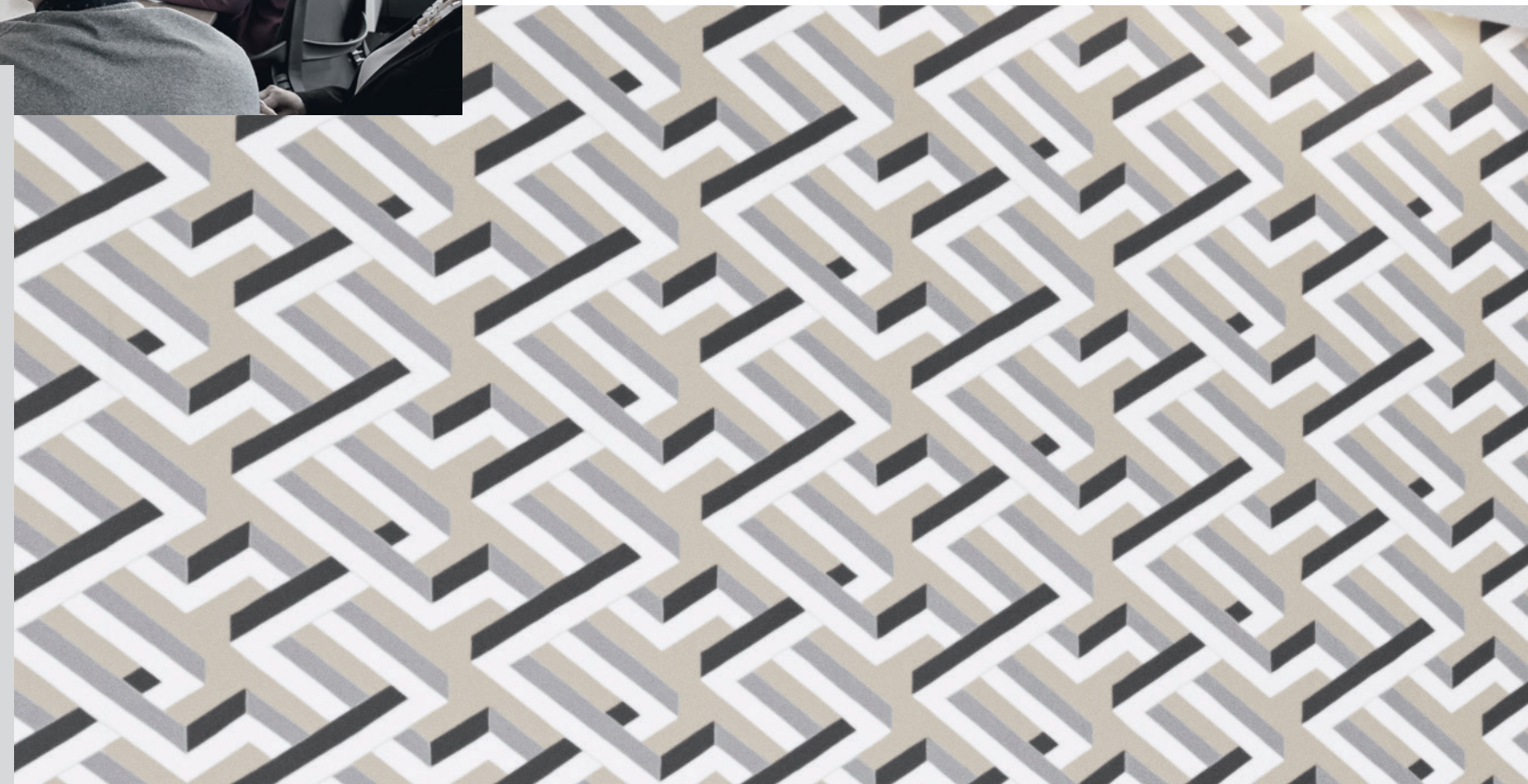
The industry-leading Microflex® Advance™ microphones have revolutionized versatile and elegant AV conferencing solutions that discreetly and precisely capture every word.



SHURE

MEETING THE NEED

Audio is fundamental to successful collaboration. Poor intelligibility deprives us of valuable information and makes our brain work harder to compensate. We can experience fatigue, and we struggle to pay attention. Shure believes that good audio directly contributes to well-being, productivity, creativity, and connectedness of people in the workplace. We also believe that room designers and architects should not have to choose between sound and style.



ADVANTAGES

ADVANTAGES

MXA910 CEILING ARRAY MICROPHONE WITH INTELLIMIX® +



SUPERIOR PERFORMANCE. UNMATCHED AESTHETICS.

Shure Microflex Advance array microphones feature revolutionary technologies that fundamentally change how audio is captured in AV conferencing environments. All are designed to work in harmony with available leading collaboration platforms, alongside Shure software tools that enable AV conference room designers to be more creative – and your meeting spaces to be more productive.



+ MXA310 TABLE ARRAY MICROPHONE



+ MXA710 LINEAR ARRAY MICROPHONE WITH INTELLIMIX®

ADVANTAGES



WHAT'S IN IT FOR YOU?



SYSTEM INTEGRATOR

The complete Shure networked systems ecosystem, from microphone to DSP to loudspeaker, are all deployed using Designer System Configuration software, enabling your teams to deliver great AV solutions more efficiently and faster than ever before.



ARCHITECT / INTERIOR DESIGNER

Providing an audio solution that blends with any aesthetic, Microflex Advance enables architects and interior designers to create visually stunning workspaces, without sacrificing sound quality. It gives clients the style they want and the audio quality they need.

ADVANTAGES



C-LEVEL EXECUTIVES

Teams work more effectively and produce better results when communication between their members is natural and effortless. Microflex Advance makes poor audio a thing of the past, and allows teams to focus on their work.



CFO / FINANCE DIRECTOR

Microflex Advance is a cost-effective audio solution that can be deployed in a variety of applications, eliminating the need for separate audio equipment purchases for audio-only and video conferencing use. Backed by industry-leading service and proven reliability, it presents a future-proof investment.



USERS

Microflex Advance enables users to be more productive and creative – simply, to do their best work. It enhances communication by allowing everyone to hear, and be heard and understood clearly, while helping to remove unwanted noise and echo that contribute to listener fatigue during collaboration sessions.



IT MANAGER / ADMIN

Microflex Advance integrates into your existing IT infrastructure, without affecting network speed or performance. Scalable to any size, with central control capabilities using SystemOn Audio Asset Management software, it makes AV/IT support more effective and less time consuming.

CEILING ARRAY MICROPHONE

CEILING ARRAY MICROPHONE

GREATER SIMPLICITY, FLEXIBILITY AND CLARITY.

The MXA910 Ceiling Array with IntelliMix®.



+ MXA910 CEILING ARRAY WITH INTELLIMIX

QUICKER COVERAGE

Industry-leading Steerable Coverage™ Technology allows you to configure up to eight highly directional lobes in three dimensions. Patent-pending Autofocus™ technology continually fine-tunes the position of each lobe in real time, for consistent sound if meeting participants adjust their location.

INTELLIMIX DIGITAL SIGNAL PROCESSING

The MXA910 with IntelliMix includes powerful Shure DSP algorithms — patented acoustic echo cancellation, noise reduction and automatic mixing – providing all of the signal processing needed for echo- and noise-free audio in A/V conferencing applications.

UNPRECEDENTED WORKFLOW EFFICIENCY

The MXA910 provides full room coverage right out of the box. And with free Designer System Configuration Software, rooms can be easily configured anywhere offline in minutes, and fine-tuned live while onsite. Even audio routing between Shure devices can be completed ahead of time – deploying room solutions has never been faster.

SCALABLE FOR MANY SPACES

Multiple MXA910s and a single IntelliMix P300 Digital Signal Processor can be combined in a system that offers a distributed DSP approach that is simple, powerful and cost effective, allowing unprecedented room expansion and scalability — including applications with camera tracking and voicelift requirements.

ELEGANT DESIGN

Seamlessly integrate arrays within a meeting space, no matter what the design aesthetic. Numerous mounting options, including pole or suspension mounts. The MXA910 is available in three colors (white, aluminum black), or custom painted as desired.



LINEAR ARRAY MICROPHONE



LINEAR ARRAY MICROPHONE



+ MXA710 LINEAR ARRAY WITH INTELLIMIX

COLLABORATION WITHOUT BOUNDARIES.

STREAMLINED DEPLOYMENT

The MXA710 represents the next innovation in array technology, and is an integral part of the Shure networked systems ecosystem. The entire audio signal chain utilizes Designer System Configuration software to get rooms up and running faster than ever.

QUICKER COVERAGE

Industry-leading Steerable Coverage™ Technology allows you to configure up to 4 (two foot array) or 8 (four foot array) lobes for optimal audio capture. Patent-pending Autofocus™ technology continually fine-tunes the position of each lobe in real time, for consistent sound if meeting participants shift in their seats.

PLAYS WELL WITH OTHERS

Today's collaboration technologies are more powerful than ever. Every Microflex Advance array microphone is fully certified and compatible with the leading platform, making the MXA710 an ideal choice for audio capture in any room.

INTELLIMIX DIGITAL SIGNAL PROCESSING

Every MXA710 ships with Shure IntelliMix DSP onboard – patented acoustic echo cancellation, noise reduction and automatic mixing – providing all of the signal processing needed for echo- and noise-free audio in A/V conferencing applications.

MEET EVERY NEED

Available in two lengths and three colors, the MXA710 provides unprecedented installation flexibility - whether on a wall next to or under a display, overhead from the ceiling, or flush mounted in a table.

TABLE ARRAY MICROPHONE

TABLE ARRAY MICROPHONE

MXA310 TABLE ARRAY MICROPHONE +

GREAT AUDIO. ON THE TABLE.

STEERABLE COVERAGE

With free Designer System Configuration software, you can specify the polar pattern for each lobe. Patterns include cardioid, supercardioid, hypercardioid, omnidirectional, bi-directional and an exclusive toroid pattern that rejects audio from above.

SOUND TOOLS

An integrated automix out with adjustable parametric EQ helps improve clarity and reduces noise – for improved audio quality, intelligibility and seamless interaction between conference sites.

FLEXIBLE NETWORKING

Mix, route and manage the signals from up to four coverage areas as discrete channels on a AES67 or Dante audio network over a single Ethernet cable. Dante Domain Manager ready for enterprise-wide deployments. Use the automix channel to easily route audio to additional devices like the ANIUSB-MATRIX audio network interface for simple integration with leading software codec solutions.

MUTE CONTROLS

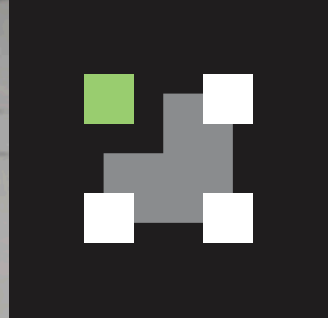
Program the touch-sensitive mute button for toggle, push-to-mute, push-to-talk or disable settings to send controls to external devices.

INTUITIVE LED DISPLAYS

The configurable LED light ring includes 17 colors and shows the mute status of the microphone in use and displays lighted segments during set-up to confirm coverage areas and selected automix settings.



SOFTWARE



+ DESIGNER SYSTEM CONFIGURATION SOFTWARE

PLAN AMAZING AUDIO.

Simply set-up your Shure Audio Ecosystem with this free software. Deploy more rooms in less time enabling you with more efficiency and consistency. Design projects online and offline.



PRE-CONFIGURED SETTINGS

Configure the Shure Audio Ecosystem for conferencing



STEP AND REPEAT

Create templates based on common floor plans.



PASS IT ON

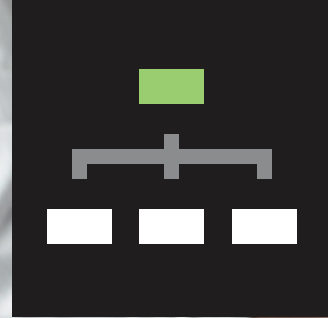
Room configurations can be saved and shared with colleagues.



SINGLE HUB

Firmware updating and Dante™ audio routing.

SOFTWARE



+ SYSTEMON® AUDIO ASSET MANAGEMENT SOFTWARE



CONQUER COMPLEXITY AND SCALE.

You can't be everywhere at once but everywhere can be with you. Update and monitor your Shure Audio Ecosystem remotely. From managing inventory and battery health in real-time and troubleshoot on the go.



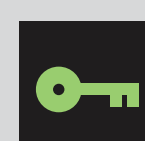
PEACE OF MIND

Stay one step ahead with text and email alerts for potential issues before they happen.



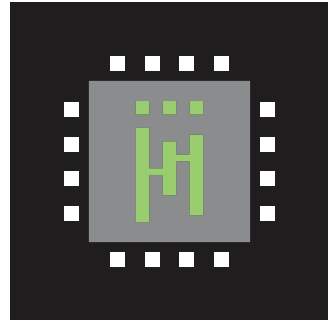
TIME SAVING

Maximize control of your organization's audio and update firmware on the go.



SECURE SYSTEM

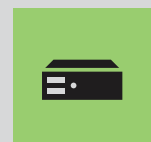
Customize access and permissions for a tailored user experience



+ INTELLIMIX ROOM®

AV THAT SPEAKS IT.

IntelliMix® Room, the first audio processing software fully optimized for Shure conferencing microphones. Simply download and deploy to in-room Windows 10 devices, and bring conferencing into the future. No custom setups or special hardware needed to enjoy crystal-clear audio on all video conference calls.



THE HARDWARE'S ALREADY THERE.

IntelliMix® Room effectively turns the in-room PC into a Shure device. All configuration is managed in our Designer software and replicable through easy-to-use templates.



DANTE ONBOARD.

Once the PC has IntelliMix Room onboard, it has Dante audio networking too. No other software license is needed to route audio to or from that PC.



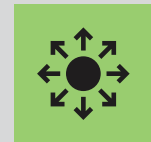
ALWAYS STANDING BY.

Running in the background of Windows, the software restarts automatically, even if the PC loses power or has to reboot after updates.



NO COMPLICATED AUDIO ROUTING.

IntelliMix Room installs with its own audio driver. Once selected from the Audio Device dropdown in the Soft Codec of choice, the client is ready to talk.



ENTERPRISE-WIDE LICENSING.

A centrally managed license lets clients easily and effectively deploy the software through their global corporate network.



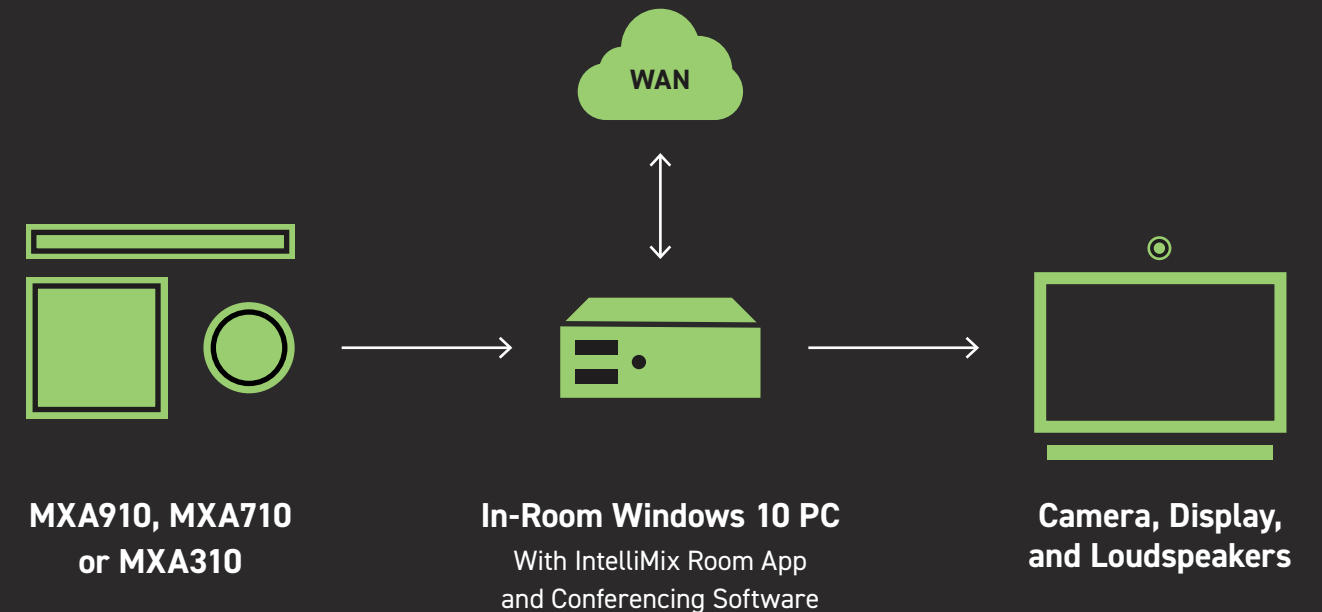
PUT A STOP TO EAVESDROP.

All connected Shure devices feature Shure Audio Encryption, so the only ones to hear it are the ones on the call.



MAKE SIMPLE THE NEW STANDARD.

Now all it takes to optimize audio is award-winning Shure MXA mics and a PC running a conferencing application and IntelliMix® Room.



APPLICATION FLEXIBILITY

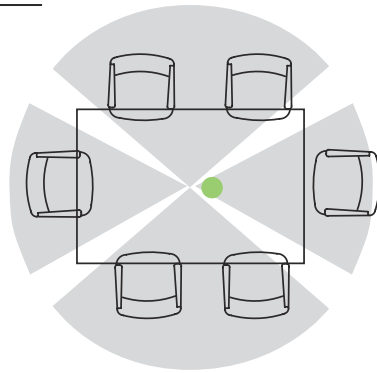
Match single or multiple arrays to the AV conferencing needs of rooms of any size, configuration or activity: formal presentations, intimate discussions, distance learning or collaborative work.

+ TABLE ARRAY COVERAGE MAPS

+ Small Rectangular Table
1 Table Array

Profile
6 Chairs
1 Rectangular Table

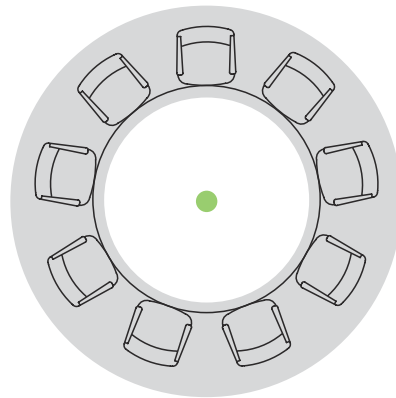
1 Bi-Directional Pattern
2 Cardioid Patterns



+ Medium Round Table
1 Table Array

Profile
9 Chairs
1 Round Table

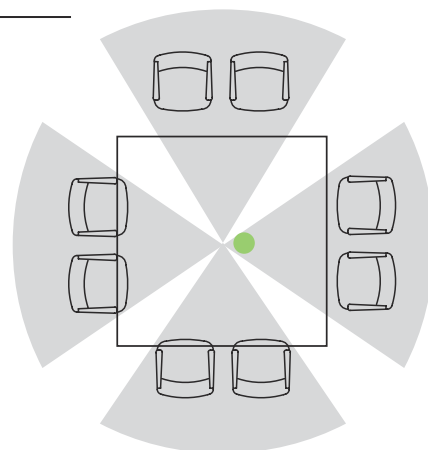
1 Toroid Pattern



+ Square Table
1 Table Array

Profile
8 Chairs
1 Square Table

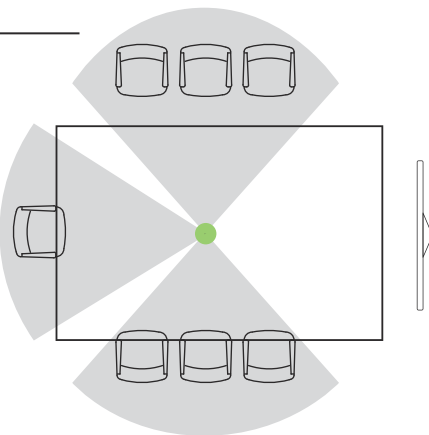
4 Supercardioid Patterns



+ Rectangular Table
1 Table Array

Profile
5 Chairs
1 Rectangular Table

1 Supercardioid Pattern
2 Cardioid Patterns

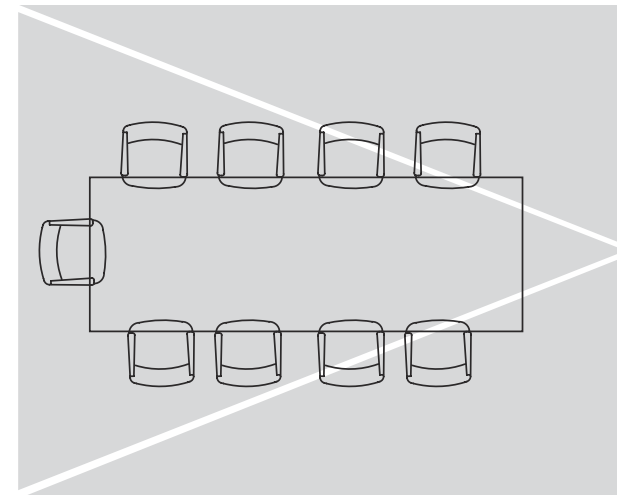


+ LINEAR ARRAY COVERAGE MAPS

+ Small Rectangular Table
MXA710-2FT
Coverage Distance: Up to 16 ft
Channels used: 3 of 4
Mic Coverage: Default

Horizontal Wall Installation

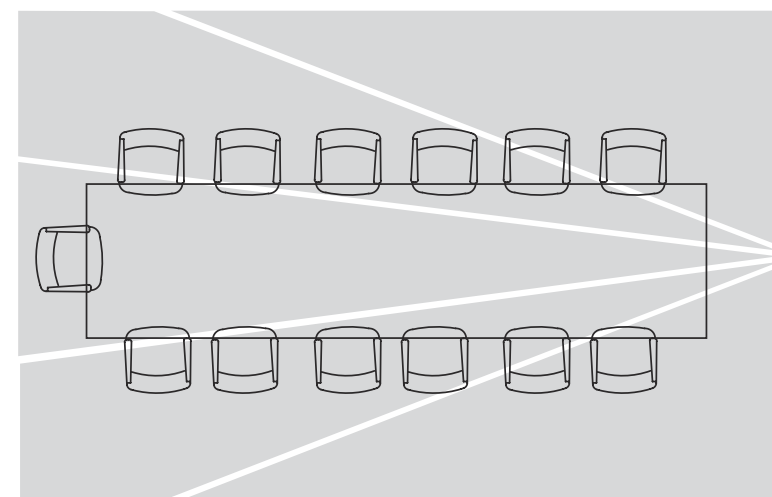
Profile
9 Chairs
1 Rectangular Table



+ Large Rectangular Table
MXA710-4FT
Coverage Distance: Up to 20 ft
Channels used: 5 of 8
Mic Coverage: Custom/Optimized

Horizontal Wall Installation

Profile
13 Chairs
1 Rectangular Table

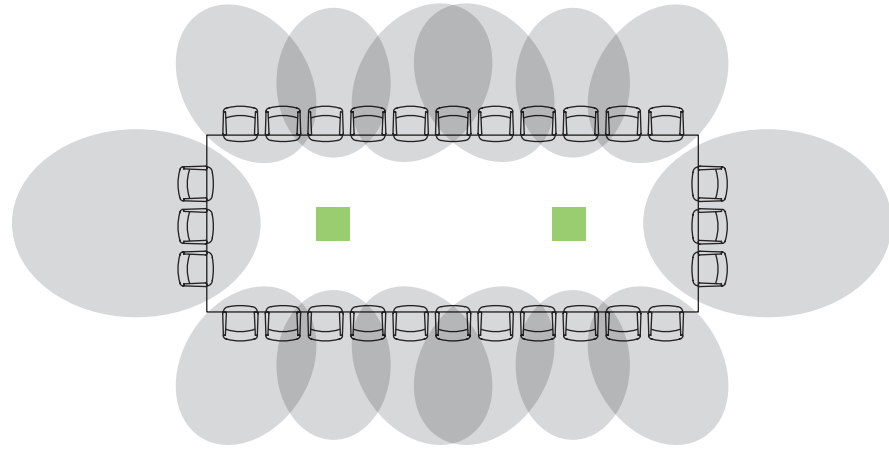


+ CEILING ARRAY COVERAGE MAPS *

+ Large Conference Room 2 Ceiling Arrays

Profile
28 Chairs
1 Rectangular Table

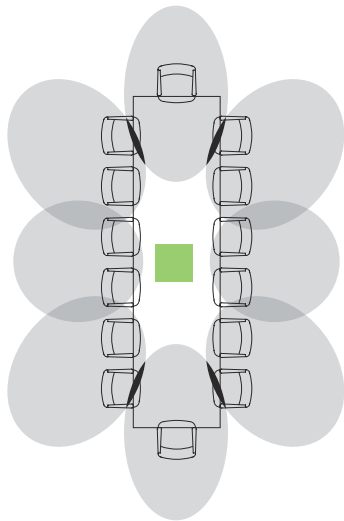
14 Coverage Areas



+ Medium Conference Room 1 Ceiling Array

Profile
14 Chairs
1 Rectangular Table

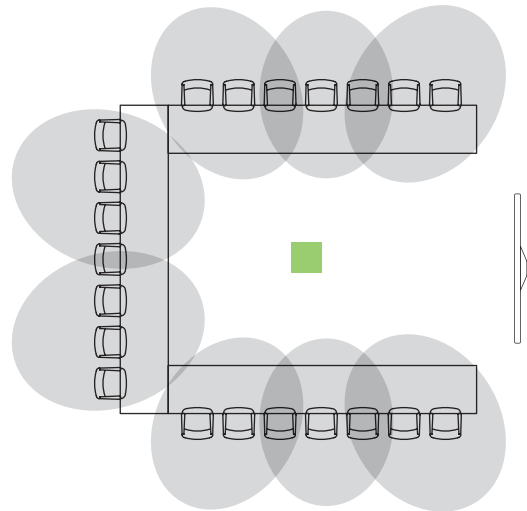
8 Coverage Areas



+ Videoconference Room 1 Ceiling Array

Profile
21 Chairs
3 Rectangular Tables

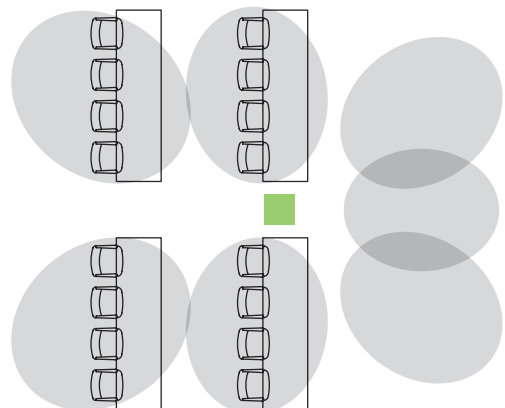
8 Coverage Areas



+ Classroom / Presentation Room 1 Ceiling Array

Profile
16 Chairs
4 Rectangular Tables

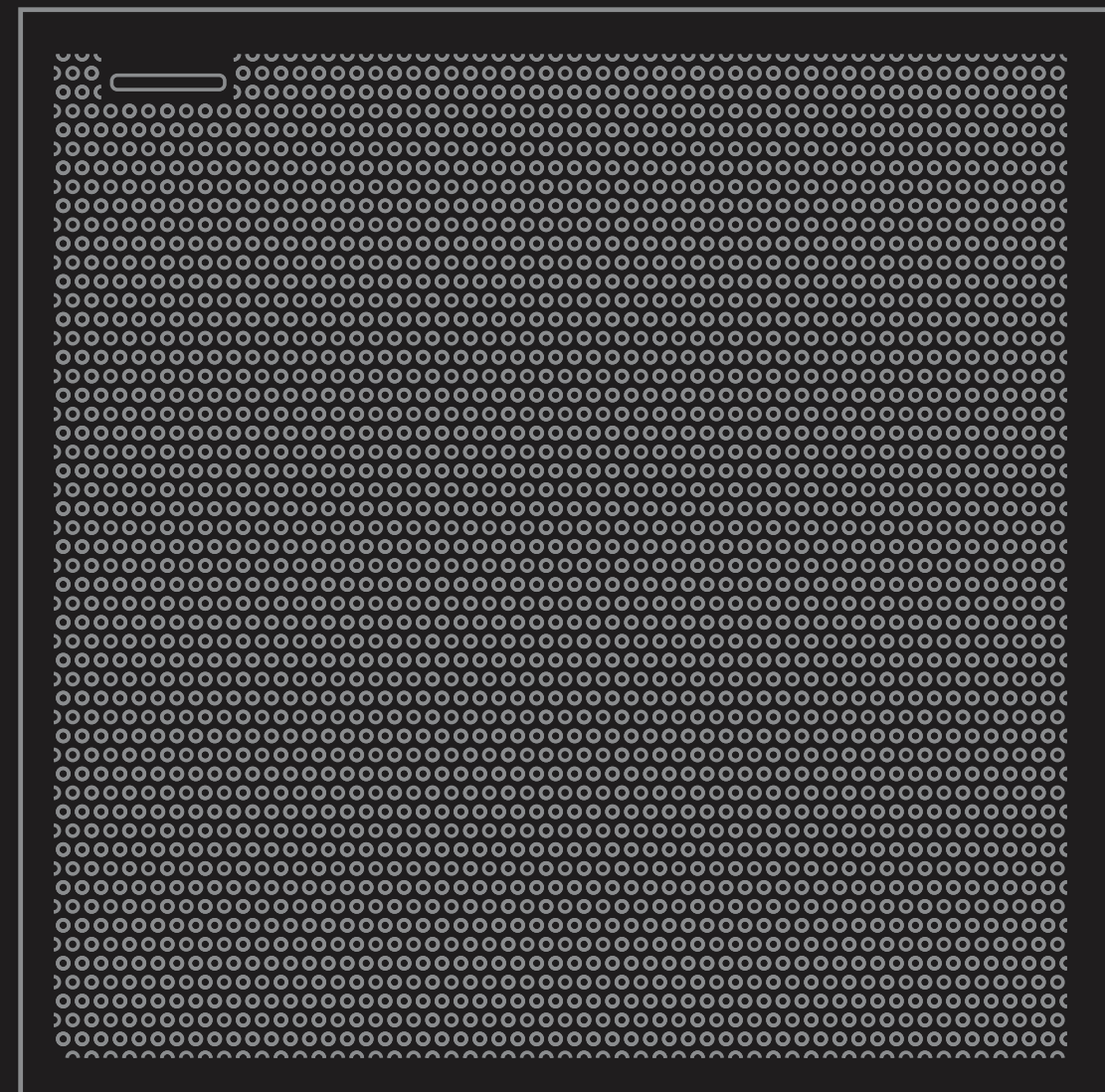
7 Coverage Areas



* Coverage Capabilities
Installed at a height of 3 meters (ten feet),
Ceiling Arrays capture audio from seated
participants to a recommended area of
9 meters (30 feet) in diameter, meeting the STIPA "A"
intelligibility rating.

** Note:
Ceiling Arrays are capable of picking up participants
beyond 9 meters (30 feet).

** Room conditions:
RT60 (reverb time)
= 500 ms @ 1kHz, weighted room noise
= 40dB SPL(A). IEC-602682-16.



BETTER TOGETHER.

Shure Networked Audio Processors and Interfaces quickly and easily integrate with Microflex Advance providing high-quality audio conferencing solution with extremely intelligible meeting sound.

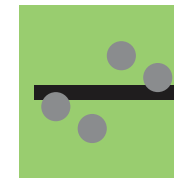


+ INTELLIMIX® P300 AUDIO CONFERENCING PROCESSOR

The IntelliMix P300 Audio Conferencing Processor offers DSP algorithms optimized for AV conferencing applications with Microflex Advance microphones. Featuring acoustic echo cancellation, noise reduction and automatic gain control for up to 8 Dante channels, the P300-IMX helps to ensure echo- and noise-free conference room audio that facilitates communication and collaboration. Easy to install and configure using Designer System Configuration software, the P300 provides Dante, analog, USB and mobile connectivity options that make joining room systems and collaborating with laptops and mobile devices easier than ever.

Features

- IntelliMix® DSP
- 10 Dante input channels, 8 output channels
- 2 analog audio inputs / 2 outputs
- USB 2.0
- 15 x 12 Matrix Mixer
- 3.5mm Mobile input (1/8")
- Easy deployment with Designer System Configuration software
- Single Ethernet connectivity
- 10 configuration presets
- Third-party control system compatible
- Dante Domain Manager ready
- Power over Ethernet plus (PoE+)
- 8 Channels of Acoustic Echo Cancellation



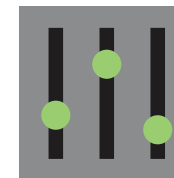
AUDIO PERFORMANCE

Enhanced meeting room audio for natural communication and better interaction in AV conferences with remote team members.



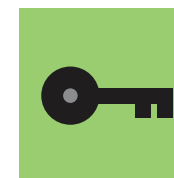
INTUITIVE CONNECTIONS

Industry-first mute sync functionality when MXA microphones are connected to the P300 for better operation with leading third-party software codecs.



SIMPLICITY

Pre-defined templates for system configuration reduce programming time, and allow installation within seconds.



SHURE AUDIO ENCRYPTION

When using Microflex Advance together with the IntelliMix P300 Audio Conferencing Processor and selected Shure Audio Network Interfaces, Shure Audio Encryption with AES-256 encryption technology can help protect confidential content.



+ ANIUSB-MATRIX USB AUDIO NETWORK INTERFACE WITH MATRIX MIXING

The ANIUSB-MATRIX Audio Network Interface provides a versatile hub for collaboration in small to medium-size meeting rooms, suitable for both room video conference systems and soft codec solutions. The device presents a budget-friendly companion to Microflex Advance microphones, for AV conferencing applications that leverage the integrated processing functionality of existing video codecs in the room.

Features

- 4 Dante audio inputs / 2 outputs
- 1 analog audio input / 1 output
- USB 2.0
- 6 X 4 Matrix Mixer
- Per channel Equalizer, Mute, Limiter, Gain
- Easy deployment with Designer System Configuration software
- Single Ethernet connectivity
- 10 configuration presets
- Dante Domain Manager ready
- Third-party control system compatible
- Power over Ethernet (PoE)



+ MXA NETWORK MUTE BUTTON

The MXA Network Mute Button is a configurable PoE-powered mute button accessory designed for Shure networked audio products, including Microflex® Advance™ Array Microphones as well as the IntelliMix® P300 and IntelliMix Room DSPs, and ANIUSB-MATRIX. One or many of the low-profile touch sensitive mute buttons can be configured to mute one or multiple microphones, depending on user needs or room configurations.

Features

- Designer System Configuration software for easy setup and configuration
- SystemOn™ Asset Management for remote management & troubleshooting
- PoE powered
- Compatible with third party control systems via programmable control strings
- LED status ring with configurable colors and brightness
- Configurable as toggle, push to talk and push to mute functionality
- IP1X rated
- Easy table installation in 1" (25mm) or 7/8" (22mm) holes



INSTALLATION



SHURE

INSTALLATION SOLUTIONS

MXA910 Ceiling Array Microphones are designed for suspension, pole and flush mounting in metric or imperial formats. The sleek, linear form factor of the MXA710 allows for placement virtually anywhere in a meeting space, including on a wall, around a display, ceiling, or into a conference room table. MXA310 Table Array Microphones feature through-the-table mounting kits. The A310-FM mounting accessory also allows flush mounting in a table.



- Integrated Vibration Isolation**
Prevents transmission of mechanical noise through the microphone.
- Plenum-Rated**
UL 2043 suitable for air handling spaces and plenum compliant when used with supplied Fyre Wrap® accessory.
- Dust Protection**
IEC 60529 IP5X Dust Protected

INSTALLATION

MXA910 CEILING ARRAY MOUNTING OPTIONS



+ CEILING GRID

MXA910W-US installation shown



+ SUSPENSION MOUNT

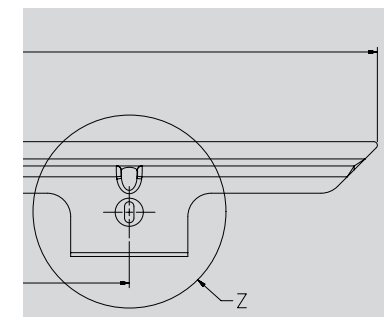


+ VESA POLE MOUNT



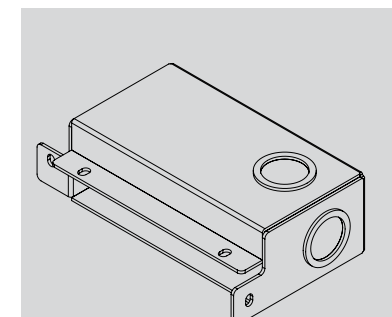
+ HARD CEILING

Requires A910-HCM accessory



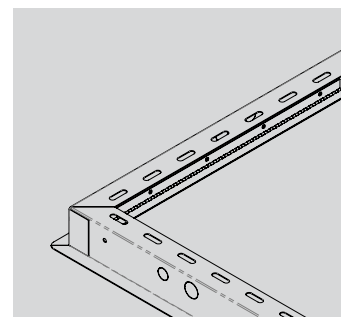
+ A910-25MM

Configures a 600 mm Ceiling Array for a 625 mm grid.



+ A910-JB

Allows the Ethernet cable connected to the array to be installed inside flex conduit.



+ A910-HCM

Hard Ceiling Mount
Can be pre-installed in the ceiling and the MXA910 installed later using the access door. Provides knockouts for conduit connections.

MXA310 TABLE ARRAY MOUNTING OPTIONS

+ TABLE ARRAY MOUNTING KIT (INCLUDED)

Cable management solutions for on-the-table or through-the-table applications; includes mounting tube/wingnut.

MXA310 retrofits existing Shure table mounted MX395, MX396, MX392 boundary microphones.



+ A310-FM FLUSH MOUNT (OPTIONAL)

Allows MXA310 Table Array to be mounted flush in the table; includes rubber isolation to prevent mechanical vibrations.

Available in black and aluminum finishes; paintable to match table surface.

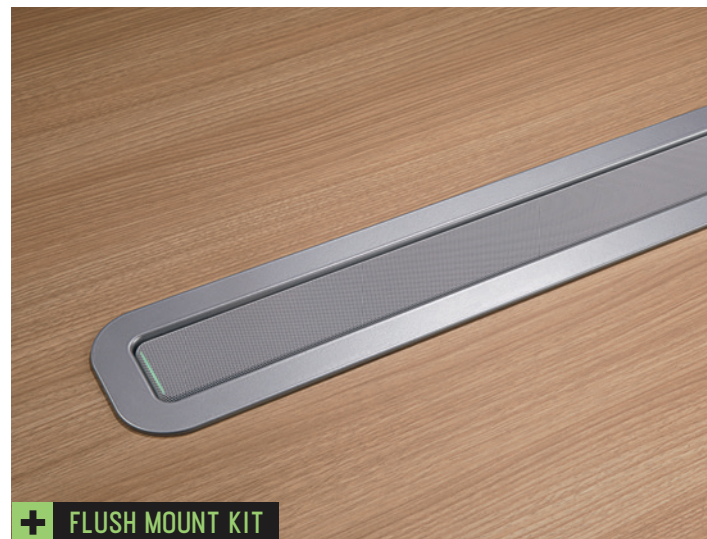
MXA710 LINEAR ARRAY MOUNTING OPTIONS



+ SUSPENSION MOUNT



+ BELOW DISPLAY WITH THIRD-PARTY MOUNT



+ FLUSH MOUNT KIT



+ WITH A710-DS DESKTOP STAND

EXPRESSIVE FINISHES

Ceiling and Table Array microphones are available in black, white and aluminum finishes to match room aesthetics or the finishes of other AV system components. The Ceiling Array microphone can also be custom-painted to fit your environment.



Dante AVIO™



Network all your analog audio gear easily and cost-effectively with Dante AVIO

Dante AVIO Analog Adapters let you use your favorite analog audio gear with any Dante-connected system, delivering the interoperability, performance and scalability that only networking can bring. Cost effective, compact and built for the road, Dante AVIO adapters bring the modern network connectivity that every audio pro needs in their toolbox.

PLUG & PLAY

Each Dante AVIO analog adapter is a complete, high performance Dante device, delivering all the automation and ease of use that have made Dante the most popular audio networking solution worldwide. Dante AVIO analog adapters are automatically discovered and ready to use when connected, and no separate power supplies are required – just use a common PoE (Power over Ethernet) switch and Dante AVIO analog adapters are ready to go.



ANALOG INPUT

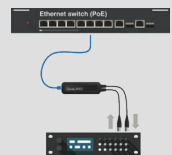
- ▶ Connect legacy mixers and consoles to a Dante network
- ▶ Patch favorite DSPs, analog compressors and equalizers into a Dante system using a combination of Input and Output adapters
- ▶ Connect stage DI boxes and keyboard instruments directly to a Dante network
- ▶ Connect your wireless mic receiver to a Dante network

ANALOG OUTPUT

- ▶ Connect analog powered speakers to your Dante audio network.
- ▶ Send audio to analog power amplifiers over a Dante audio network.
- ▶ Create easy drop-points for connecting cry rooms and overflow areas to a Dante network.
- ▶ Connect non-networked hearing aid loop amplifiers to your Dante audio network.

FEATURES

- ▶ Plug & play operation
- ▶ Built for the road
- ▶ Sample rates up to 96 kHz
- ▶ 16, 24 and 32-bit audio support
- ▶ Excellent dynamic range, SNR and THD performance
- ▶ Configurable gain / attenuation
- ▶ Dante Audio over IP and AES67 RTP transport formats
- ▶ Power over Ethernet (PoE) support
- ▶ Dante Domain Manager ready



BUILT FOR THE ROAD

We've made Dante AVIO analog adapters road-ready and tour-tough. Sonically welded ABS enclosures and quality hardware are used throughout, while cable assemblies are stress-tested to ensure reliable operation under grueling conditions. Toss them in your toolbox, show after show.

ALL DANTE

Dante AVIO adapters are all fully functional Dante interfaces, with all the features you'd expect from Dante audio networking. Each one delivers bit-perfect audio reproduction, super-low latency and sample-accurate synchronization across the entire network. All Dante devices automatically discover one another, and the entire system is managed by our easy-to-use Dante Controller software on any connected PC or Mac. Most importantly, every Dante device can connect to every other Dante device – no questions asked.

All Dante AVIO adapters are fully compatible with Dante Domain Manager (DDM) for IT-level security and management, while AES67 is supported for connection to non-Dante networks.

COST-EFFECTIVE

We've worked hard to make the Dante AVIO family of products a cost-effective addition to any system or piece of gear, so that everyone can enjoy the benefits of Dante. Audio networking has never been easier to or more affordable, no matter how you choose to use it.

DANTE AVIO ANALOG INPUT & OUTPUT

Dante AVIO Analog Adapters allow you to use the audio gear you already own with your Dante network. Don't abandon trusted compressors, equalizers or analog power amplifiers - adapt them to the world of audio networking with Dante AVIO.

Dante AVIO Analog Adapters are available as balanced line-level single or dual-channel input or output adapters, with high-quality XLR connectors. Use the Analog Dante AVIO Adapters to add Dante networking to analog amplifiers, powered loudspeakers, signal processors, music players or any other analog audio device, for hum-free digital signal distribution throughout your audio network.

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+(852)-3588 0031

Max signal level (balanced)*	+24dBu / +4dBu / 0dBu		+18dBu / +4dBu / 0dBu	
	0dBV / -10dBV		0dBV / -10dBV	
Frequency Response	20Hz to 20kHz (-/+0.5dB)		20Hz to 20kHz (-/+0.5dB)	
Impedance	20k Ohm balanced 10k Ohm unbalanced		150 Ohm balanced 75 Ohm unbalanced	
Dynamic Range	> 100dB		> 100dB	
Signal to Noise Ratio	> 100dB		> 100dB	
Total Harmonic Distortion	< 0.01% at +4dBu		< 0.01% at +4dBu	
Connectors	RJ45 & 1 XLR-F	RJ45 & 2 XLR-F	RJ45 & 1 XLR-M	RJ45 & 2 XLR-M
Power	Class 1 802.3af PoE			
Sample Rates	44.1, 48, 96 kHz			
Bit Depth	24			
Dante Device Latency	1, 2, or 5ms (configurable using Dante Controller)			
Network Transport	Dante Audio over IP, AES67 RTP			
Part Number	ADP-DAI-AU-1X0	ADP-DAI-AU-2X0	ADP-DAO-AU-0X1	ADP-DAO-AU-0X2

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Dante AVIO Analog Marketing Datasheet





IMEO1

Professional 2.1 soundbar

Highlights:

- Integrated Bluetooth receiver
- Clever bracket system included
- 2.1 Soundbar
- Integrated subwoofer
- Preset equalizer modes
- HDMI (ARC with CEC) input
- Optical & coaxial inputs (SPDIF)

The IMEO1 Soundbar features a slim and elegant design and includes all required functions for expansion of any audiovisual system with an impressive sound, while having a minimal hassle for installation. It's perfectly suited for installations such as classrooms, presentation rooms or meeting rooms where it can be used and installed in combination with screens, smartboards or projectors.

The acoustics feature two 1.75" high frequency drivers with an RMS rating of 15 Watt and a low frequency section composed of two 2.5" low frequency drivers with an RMS rating of 30 Watt, resulting in an overall 60 Watt RMS rating. The Class-D amplifier with integrated WaveSelect DSP processing and transmission line configuration for the low-frequency drivers offers a crystal clear sound reproduction with stunning low-frequency response. Selectable DSP presets offer optimization for applications such as presentations, music playback or video's.

Various input possibilities such as an unbalanced line input, HDMI (ARC) input or SPDIF (optical and coaxial) allow compatibility with a variation of input sources, while Bluetooth allows wireless connections with portable devices.

In installations with multiple IMEO1's installed throughout the building, it can be desirable to assign custom Bluetooth ID's to distinguish them from each other. Typical applications are hotels, conference rooms, schools, ... The hotel mode function in the firmware offers a solution for these applications. An additional function is also implemented to define a specific wake-up source, allowing the IMEO1 to always turn-on with the same input source selected, no matter which input source was selected before power-down.

An included IR remote control allows input selection, volume control and EQ preset selection while the unique and clever wall mounting bracket allows convenient mounting to walls on any kind of surface or location with an optimal guiding and coverage for the cables.

The auto standby function ensures that the IMEO is automatically put in energy-saving mode after 15 minutes without input. This way, no unnecessary energy is lost, while the IMEO remains ready to play at any moment.



Applications:

- Education
- Hotels
- Corporate spaces
- Residential

System specifications:

Inputs	Connector	3.5 mm Jack (Unbalanced)
		Coaxial SP/DIF digital input
		Optical SP/DIF digital input
		HDMI ARC
Outputs	Power	2 x 15 W
		1 x 30 W
Sound Pressure (Max. W/1m)		90 dB
Frequency	Response (± 3 dB)	40 Hz - 20 kHz
THD+N (@ 1 kHz)		1%
Bluetooth specification		V3.0
		Class 2 output power
Power	Source	220 ~ 240 V AC / 50 ~ 60 Hz
	Consumption	30 W
	Standby	0.5 W
Control		Remote control (IR)
		Selection / volume switches (side panel)
Drivers		2 x 2.5" MF / LF Woofer
		2 x 1.75"

Product Features:

Weight		3.6 kg
Dimensions		1000 x 60.8 x 111.3 mm (W x H x D) (Excl.bracket)
		1000 x 60.8 x 134.3 mm (W x H x D) (Incl.bracket)
Colours		Black (RAL9005) (IMEO1/B)
		White (RAL9003) (IMEO1/W)
Mounting & handling		Mounting wall bracket
Front finish		Steel grill
Construction		ABS
Accessories	Included	Power cable
		Wall mounting bracket
		Remote control (IR)
		3.5 mm jack audio cable (1 meter)
		3.5 mm jack audio pigtail (0.15 meter)
		90° HDMI angle adapter

Variants:

- IMEO1/B - Black
- IMEO1/W - White

Architects' and Engineers' Specifications:

The loudspeaker shall be a 2.1 active sound bar system with integrated subwoofer, composed of two 1.5" high frequency drivers and two 2.5" mid/low frequency drivers in a transmission line configuration offering crystal clear sound reproduction with stunning low-frequency response. The enclosure shall be slim and elegant, constructed using ABS materials with a finely perforated steel grill front finishing. The high frequency section shall have a power handling of 2 x 15 Watt and the low frequency section shall have a power handling of 30 Watt, resulting in an overall rating of 60 Watt RMS. The frequency response (± 3 dB) shall range from 40 Hz to 20 kHz. Various signal inputs shall be implemented, including a stereo line input using 3.5 mm jack connections, a digital audio input with both optical and coaxial implementation and a HDMI ARC input. An integrated Bluetooth receiver shall allow wireless connection of portable devices including smartphones, tablets or any other. The overall volume and input selection shall be selectable using controls on the side panel of the device, while an included remote control (IR) shall allow selection of various equalizer presets. The input selection shall be lockable through the remote control, avoiding users to make any changes. An unique and clever wall bracket system shall be included, allowing the loudspeaker to be installed to walls on any kind of surface and with an optimal guiding and coverage of the cables. It shall allow two-directional installation offering possibilities for installation on top or bottom of a screen or projection surface while having optimal directional placement of the speaker. The speaker system shall operate on a 220~240 V AC / 50 ~ 60 Hz mains network and shall be equipped with a removable power cord having a standard Europlug (CEE 7/16) AC plug. The connector on the active speaker shall be a fused IEC C8 type. The speakers' enclosure shall be 60.8 mm high, 1000 mm wide and 134.3 mm deep (including the mounting bracket) and the weight shall not exceed 3.6 Kg.

Príloha č. 2:

Návrh na plnenie kritéria

Predmet zákazky:

Systém riadenia a ovládania prenosu video-mítingov - 36

Verejný obstarávateľ:

Univerzita Komenského v Bratislave

Šafárikovo námestie 6, 814 99 Bratislava

(uvedte, prosím, označenie konkrétnej značky a modelu, ktorý predkladáte do ponuky)	Návrh na plnenie kritéria
<i>Systém riadenia a ovládania prenosu video-mítingov (otvorený systém riadenia a ovládania digitálnych technológií pre zabezpečenie prenosu video konferenčných mítingov a vzdelávacích kurzov prostredníctvom MS Teams)</i> <i>- Snímacie zariadenie s pohyblivým sledovaním prezentujúceho: AW-HN38HW Panasonic</i> <i>- Riadiaci systém so systémom automatického sledovania prezentujúceho: HP NTB Pavilion Gaming 15, software Panasonic AW-SF100 Z, software Audinate Dante Virtual Soundcard , Cisco C1000-8P-2G-L</i> <i>- Audio systém: Shure MXA710, Audinate AVIO 0x1, Audac IMEO1</i>	
Cena celkom bez DPH	7 845,00 €
DPH 20%	1 569,00 €
Cena celkom s DPH	9 414,00 €

Názov uchádzača: MediaTech Central Europe, a. s.

Sídlo uchádzača: Drieňová 34, 821 02 Bratislava

Štatutárny zástupca uchádzača: Ing. Bohumil Tonkovič, predseda predstavenstva

.....

Ing. Bohumil Tonkovič
predseda predstavenstva
MediaTech Central Europe, a. s.