

La Trobe University AV Design Guidelines Meeting and Collaboration Spaces v1.5

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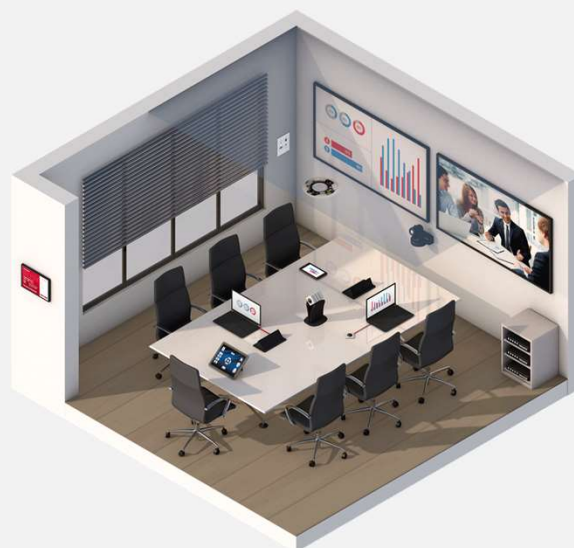


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Executive Summary

Background

La Trobe University is moving into the next phase of its transformation. The implementation of a new operating model in 2022 was underpinned.

- by standardised processes,
- fit for purpose technology and
- new ways of working.

The incorporation of modern capability development practices will have a significant impact on fostering a committed and highly efficient workforce by integrating innovative work methodologies.

“La Trobe is a university known for making a positive difference in the lives of our students, partners and communities. We will become an even more valued and relevant university because of the way we respond to their needs in this time of great local and national crisis. Our aim is to emerge as a more resilient, future-focused and necessarily more efficient institution that will thrive in a post-COVID world by being more sharply focused on the needs of our community, and by playing to our strengths in teaching and research.” (La Trobe Strategic Plan 2020-2030)

To realise LTU’s vision, the University is embarking on a 5 year program of activity to build an agile high performing workforce and transform how we work, support and empower our people, embed new technologies and rethink how we use our campuses. We call it “This is the People and Ways of Working”. One of the key drivers of this initiative is the social connection element which is where the Teaching and Collaboration Spaces Project becomes an important facilitator both with creating spaces for social and face to face social connections and the implementation of technology for connectivity to those not on the campus where the meeting/ discussion is taking place from.

Benefits of Hybrid Workplaces

Meeting and Collaboration room design has always been important because meetings have always been important. Productivity and innovation in the workplace require good collaboration. The more we can provide spaces that foster collaboration, the better. Now that we’re moving into a new era of increased hybrid work, good collaboration room design will be even more critical. The right meeting room design can enhance these less frequent interactions, increasing both productivity and collaboration.

Ultimately, the office is no longer the default location where people work, nor is it the only location. For industries that can embrace flexible working, the office is becoming more of a destination. Employees don’t go there just because they must be there. They go because there’s something they’re trying to accomplish.”

A good conference room is therefore one that maximizes how all workers, including remote and hybrid workers, can use the office. Whether that’s for collaboration, planning, or brainstorming.

A meeting room is a space set aside for teams to discuss issues, collaborate on projects, and make decisions. It is meant to foster communication and enhance collaboration. Meeting room space and availability are often at a premium, and to host productive meetings, considerable resources are required.

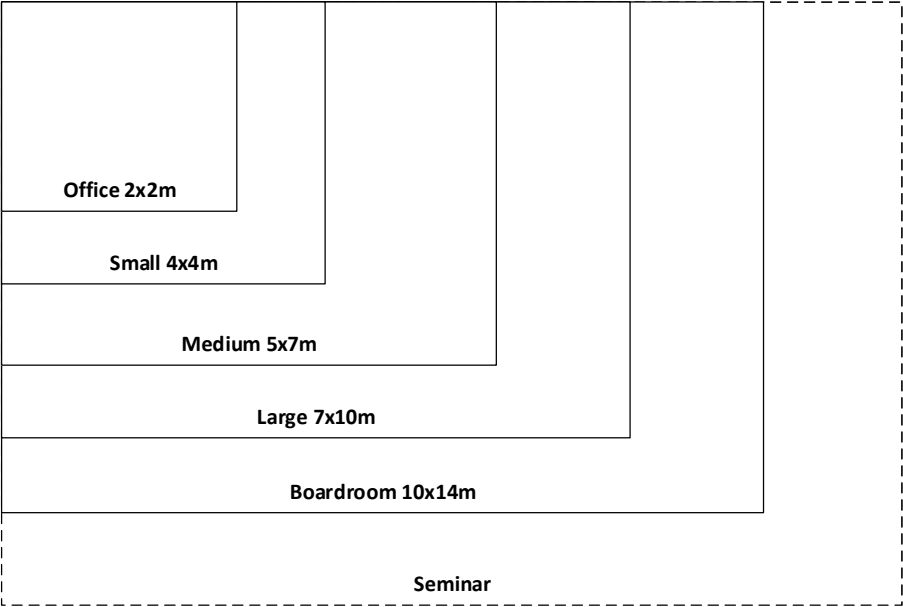
There are technologies available in a meeting room that enhance this experience but the space is mainly there to facilitate interpersonal work. A modern conference room can also help keep a hybrid workforce more connected to each other and to the office.

Meeting Room Designation

Meeting rooms are typically equipped with tables, chairs, power points and Wi-Fi and may contain audio-visual equipment and video conferencing facilities. The space is generally used by a specific functional unit or office area and/or for general purposes such as community or campus group meetings not associated with a particular functional unit.

Nominal room sizing’s and designations are as follows:

- Small: 3-8 persons
- Medium: 7-12 persons
- Large: 12+ persons
- Boardroom 20+ persons



Administration

Primary Objectives of the Design Guidelines

In summary the primary objectives of the Collaboration *Design Guidelines* are to:

- Align with I&O standards and requirements.
- Define a minimum level of functionality and installation quality for meeting rooms.
- Provide a consistent experience for end users, designers, and support personnel for all meeting room AV system deployments.
- Provide guidance to consultants, integrators, architects, and other stakeholders regarding the selection, design, and installation of audio-visual components and systems.
- Deploy of room audio-visual systems that can be supported in a timely and cost-effective manner.
- Define equipment types, enabling consolidation of spares and simplifying vendor support.
- Provide preferred La Trobe University meeting room audio-visual equipment list in the AV Design Standards **Appendix B** – Preferred Equipment List.

Consideration should be given to:

The specific physical contextual qualities and characteristics of the *Project* site and various *campuses*.

The availability, layout, and capacity of existing infrastructure services to the sites and adjacent areas.

The Whole of Life cycle cost of the elements & equipment being delivered via the *Project*.

The Collaboration *Design Guidelines* are required to be read as a whole, understood & adhered to by all *Consultants* across all disciplines.

The *Collaboration design guidelines* will apply to all new work (new build & refurbishment). The *Collaboration design guidelines* will apply to all *LTU Campuses* unless noted otherwise.

The Collaboration design guidelines are issued under the authority of the Manager Digital Futures Information Services.

Compliance with AV Design Standards

As per the Consultant’s Agreement and standard LTU contracts, it is the responsibility of the Consultants to ensure that the intent and requirements of the AV Design Guidelines are implemented in documents and in instructions to Contractors.

When a consultant is engaged, the version on the Design Standards displayed at that date on the I&O web page will be the Design Standards that are applicable to the Project. If amendments or revisions are made throughout the course of the Project’s life, the Consultant is to review the amendments and advise what is required to accommodate the amendments.

Potential Departure from AV Design Standards

Potential Departure from AV Design Standards

There may be times where the Consultant considers there is a potential:

- conflict or error within the AV Design Standards, or
- uncertainty in the application of the AV Design Standards, or
- conflict between the Design Standards and reference documents, standards and/or regulations outside the Design Standards, or
- alternative that may be required.

As per the Consultant’s Agreement, if there is a potential departure from the Design Standards, the Consultant is to follow the process outlined in that document.

The Consultants are not to assume that any deviations from the Design Standards will be supported and are to factor time taken to consider applications and contingencies in their design for when the deviations are not supported in their project programs.

Digital Futures use the tabulated deviations when undertaking the annual reviews of the Design Standards to determine if any of the clauses require amending. This might be because a particular requirement is not being able to be regularly met or a more efficient/cost effective piece of equipment being specified by several consultants.

Meeting and Collaboration Rooms Naming Convention

Collaboration room designs are given a name designation corresponding to the size and seating capacity. The designation denotes the types of equipment that can be installed into the room. The following elements are contained in the name of each space.

RRR_NN_SSS(N/C/U)_NN (Example: CON_01_24C_01)

R: Room Size Designation

NN: Number of displays

SSS/PRJ: Screen Size/Projector

(N/C/U): Non-collaborative/Collaborative/UC Engine

NN: Design Number:

- 01 = Table away from the wall with floor track
- 02 = Tabel against the wall
- 03 = Free standing
- 04 = Custom or Bespoke design

Nominal room sizing’s and name designations are as follows:

(CON) Consult: 1-4 persons

(SML) Small: 4-6 persons

(MED) Medium: 7-12 persons

(LRG) Large: 12+ persons

(BOA) Boardroom 20+ persons

Monitoring and Maintenance

Maintenance is an important component of a well-functioning system. It helps companies maintain their resources while controlling time and costs to ensure maximum efficiency of their systems, utilities and related facilities. Monitoring is an essential process for any enterprise system, it allows the gathering of data which is used as a basis for decision-making and learning processes. Monitoring provides information on where a system is at, at any given time relative to respective targets and outcomes. It helps to identify problems and improve performance, for this reason all of the components that form a meeting room solution capable of being monitored by Information Services will be monitored. This includes data relating to the health of audio-visual components, usage, occupancy, and other telemetry.

Design Philosophy

Gone are the days of white walls and uncomfortable office furniture. Today's offices are embracing a wide range of meeting room design options, bringing modern interior design ideas into collaborative workspaces. This can include ergonomic furniture, embracing natural light and cutting-edge technology, and using well planned and branded meeting room names.

Specifically, we want to consider the following elements of a good office meeting room design.

Choose an appropriate layout

Meeting rooms are not all equal. Some are for board meetings, others for presentations or meetings with clients, and others still for casual brainstorming sessions. That's why there is no one best meeting room layout that works for every office. Our organisation isn't a hierarchical structure that wants to stick with the classic boardroom layout. Typically, one large conference table and a leader at the helm. Instead, we need meeting spaces that foster free thinking and ideas.

- Meeting spaces typically used for presentations are better suited with a U-shape table where the chairs can orient to all face the front of the room. This direct everyone to focus their attention.
- Spaces seeking to stimulate participant engagement and foster creativity are better suited when smaller and have technology that enables idea creation and rapid revision like digital whiteboards.

In either scenario, the goals of the meeting space should help shape its layout.

Prioritise Comfort

Meeting and collaboration rooms should follow repeatable practices for office design. Namely, shareable spaces should be comfortable both visually and physically. Comfortable swivelling chairs and other elements to create a more inviting space.

Furniture is a crucial element of meeting rooms. Uncomfortable chairs will detract attention from the business at hand. Tables that are too small can cause a cramped feeling, which will make the meeting unpleasant. Choosing appropriate furniture for the conference room is a balance with look and comfort. It will go a long way towards increasing meeting participants' focus and productivity.

Invest in a Good Table

The table is ultimately where the magic happens, so it's worthy of more consideration than other furniture in the room. Of course, the type of table used in a conference room will depend on the layout. The height and size will vary by meeting room design. Some spaces may want a standing table, others smaller fixed to a wall. In either case, we should choose a sturdy table with built-in tech hook-ups as appropriate.

Clear Presentation Area

Where do we anticipate presentations taking place? Make a point of knowing where this area is in the conference room. Now consider how everyone's chairs will be arranged when someone is speaking. Can everyone see? Does everyone have access to necessities like power outlets, HDMI/USB cables? Does everyone have enough space between them?

It's easy to place a table in a room with chairs around it. But room layout has to be conducive to communication. Knowing where the presentation area is and how everyone else will be positioned is critical. If we've set up the presentation area in a way that causes half the room to turn away from the table and have their backs to the other members, it will make conversation more difficult.

Function and Flexible Technology Options / Make Sure Your Technology is Visible

There are a few key elements when setting up the technology in the meeting room. It must be easy to set up and use. Nothing is as frustrating as wasting everyone's time trying to get a presentation to show up on the meeting room display. The easiest fix to this problem is to remove complexity by having few technology options available. Providing HDMI cables so anyone can quickly and reliably sync their computers to the display. Ensure abundance of Wi-Fi so everyone can connect and access files or other information during the meeting.

Everyone must be able to connect with the meeting room's technology. Include large signs on walls around the meeting room that demonstrate how to connect to the technology in the meeting room.

Reflect our organisation's brand.

The meeting room is a peek into the rest of our organisation. Not everyone will see our entire campus in detail. Often people are moved from the lobby straight to the meeting room. If that's the case, make sure we convey our organisation's culture and brand through topics like room themes, colours, furniture, and art when designing our meeting rooms.

Design Philosophy

Technology Considerations

Today's meeting and collaboration rooms offer several technological advances. They include high-definition video, interactive whiteboards, and sound-absorbing materials. As a result, they make it easier for businesses to host meetings and collaborate on projects. They also provide a pleasant environment for participants

Sound Absorbing Materials

Sound-absorbing materials are becoming an important aspect of design for the modern conference room. They help to trap noise from outside while allowing people to have a clear and unobstructed voice. There are several different options, and each one has advantages and disadvantages. For example, wall-mounted acoustical panels and ceiling-mounted baffles can be used to help improve the acoustics of the conference room.

Acoustic fabric panels are another option for acoustic control in modern meeting and collaboration rooms. They are ideal for areas with high ceilings or perimeter walls. Unlike traditional wall-mounted acoustic panels, these panels absorb and convert sound waves, leaving the original sound with a high level of clarity.

High-Definition Immersive Video

Immersive video and high-definition audio are changing the way that meetings are conducted. The combination of the digital data streaming and content sharing transforms traditional conference room technology ideas into a dynamic environment where people from all over the world can work face-to-face. This technology also integrates smart technology that allows management to control the room's environment as needed.

Meeting room hardware scales to accommodate different room sizes. Wide field view cameras are ideal for huddle rooms, while mechanical pan-tilt-zoom cameras expand optical zoom to larger rooms. For users looking to bring a richer video experience to a personal space, external cameras represent a step up from embedded devices and can be used in a greater number of scenarios and configurations, ensuring that call participants share the best quality view of themselves.

In shared spaces, the options and features expand. Smaller rooms may be covered by cameras included within all-in-one audio devices, such as soundbars. These cameras typically feature a wide field of view, ensuring that they capture every participant in the space in a single shot. Many of these cameras also feature things like intelligent framing of the image, so that the camera only shows the people in the meeting and not empty chairs, or people counting, to track and understand space utilization.

In larger rooms, cameras feature the technology needed to capture participants in a variety of locations at varying distances away. These cameras can capture groups or focus on specific individuals while maintaining great visual clarity. Devices that can track and feature only active speakers are regularly used in larger spaces so that many participants may be featured individually throughout a meeting as they contribute their thoughts.

High-End Audio Reproduction

meeting and collaboration rooms are often equipped with high-end audio equipment. Audio reproduction is one of the key aspects of any meeting, and it is important to ensure that it sounds as good as possible. In addition, a good sound system can ensure that attendees can focus on what is being discussed and avoid distractions.

Audio equipment must be well-designed and installed to ensure optimum performance. It should minimize background noise and echo. Many different microphones and speakers are available, and a combination can deliver excellent audio reproduction in a conference room. Pairing the right microphone and speakers for each space will give the best possible results for being heard clearly without distraction.

In shared spaces, the options expand, but the same principles remain: meeting participants need to be heard and hear others clearly.

All-in-one audio devices are easy-to-deploy, with high-quality options for smaller spaces with a limited number of participants seated relatively close to the audio device.

In larger spaces, the microphones and speakers are separate to ensure maximum coverage across all participants in the space. Many solutions for medium- to large-sized rooms are available as part of a kit that requires no configuration, only physical installation of microphones and speakers.

Interactive Whiteboards

If you're in charge of running a meeting in a modern conference room, then you're probably familiar with the benefits of interactive whiteboards. These digital boards allow participants to write, draw, and share images.

Unlike traditional dry-erase boards and paper flipcharts, interactive whiteboards are designed to foster greater group participation and engagement. Users can also download their annotations to their computers and email them to other participants.

UC Engine

Modern meeting and collaboration rooms are equipped with high-definition immersive video and audio capture, while content sharing and mobile connectivity solutions enable face-to-face collaboration and digital data streaming. These innovations make it easier to collaborate across state boundaries. In addition, touch-sensitive whiteboards enable participants to make annotations, make notes, and edit documents without ever leaving their seats.

Some solutions provide real-time translation so everyone can understand what's being said during a meeting. Others recognize attendees and provide real-time data on their locations. While these high-end features were once available only in larger meeting and collaboration rooms, these days, many are becoming widely available and are affordable for smaller meeting and collaboration rooms.

Booking System

A room booking system is a digital tool that simplifies the process of reserving different spaces like meeting rooms and conference halls. Its main purpose is to help staff manage the use of these spaces in an organized and efficient way. By using a room booking system, one can easily reserve a room for a specific date and time, view its availability, and prevent potential booking conflicts or overlaps. It can also provide additional information like the room's capacity, facilities, or location. Ultimately, a room booking system streamlines the reservation process, making it more convenient and efficient.






Booking Panels

A booking panel is a tool designed to help manage and schedule the use of a meeting room. It enables staff to view the availability of the room, ensuring that the space is used efficiently. Furthermore, it helps avoid interruptions during meetings by displaying whether the room is busy or free. Essentially, the booking panel makes the process of reserving a meeting room more organized, efficient, and convenient.

Video

Video presentation is used to describe the display of any visual content, including slides, images, documents as well as videos. LTU rooms use a variety of types and quantities of displays depending on room size and functionality. The use of multiple displays in some rooms ensures that everyone in the room is able to see the same content, while in other rooms different displays will show different things.

Equipment You Might Use

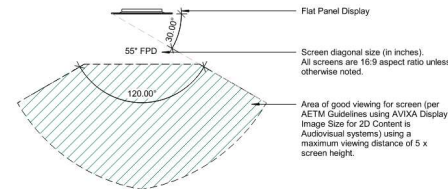
 Flat Panel Single	LCD or Flat Panel Displays Flat Panels look like your TVs at home. Each panel has their own source of light so they are generally bright and easy to see in most conditions. They come in wide range of sizes to suit the room arrangements however their maximum size tends to be 98 inches diagonal so they can't be used in the largest rooms.
 Flat Panel Dual	Dual Flat Panel Displays Some rooms (especially meeting rooms with a heavy emphasis on video conferencing) will use two flat panels, side-by-side to show a shared screen and video of the conference participants on two different screens. This has some advantages, however neither of the two screens will be centered to the table (affecting audience sightlines). In many instances a single larger screen (that can be centered to the table) may be preferable).
 Digital Whiteboard	Digital Whiteboards These are special flat panels that are interactive using a touch screen. This has the advantages over traditional white or black boards as the content shown on the screen can be easily shared to a video conferencing session. Blank screens can be used for free drawing or digital content can be displayed and annotated using the supplied "pens. Content can also be manipulated using touch gestures like a tablet or smartphone.
 Projectors	Projectors and Projection Screens Projectors are useful when a larger screens are required (>100" diagonal screen size) or when the screen should be hidden when not in use. Care should be taken to control lighting conditions in the room (such as sunlight and electric light) as projected images can be easily "washed out" by bright rooms and appear very dim. Projected Images will be shown either on white plaster walls or on retractable projection screens that are automatically deployed and retracted as part of the system control
 Relay Screens	Relay Screens For larger rooms, it may not be possible to install a main display of sufficient size to cover the whole of the audience area. The main screen size may (for example) be limited by the available ceiling height of the room resulting in an undersized main display. In this instance additional flat panel displays may be located further back in the room for use with audience members towards the rear of the room to clearly see the same content as is shown on the main display(s).

Video Ideas To Understand

Selecting a Screen Size

It is important that every member of an the audience can comfortably see a display and understand the content. There are limits to how far away from a given sized screen or how far away from the centre of the screen area a member of the audience can be and still comfortably view the content a screen.

Screen sizes should therefore be chosen by looking at the distance to the closest and furthest viewers in the audience and positioned based on an area of good viewing as defined by the diagram below:



Video Sources

Sources are devices that are either built into the room or are brought in when needed. To allow for people to bring in their own devices (BYOD) cables are provided in many rooms. **USB-C fly leads** allow laptops to be connected to the video conferencing cameras, microphone and loudspeakers in the room, enabling users to use their own platform such as Teams, Zoom, Webex etc from their laptop. **HDMI fly leads** allow for video from a laptop to be sent to the room displays.



Single vs. Dual Screens

For some rooms that will use a lot of Video conferencing, the use of a single or dual screens should be considered.

Dual screens generally allow for more screen area, with each screen being used for a specific thing (e.g. shared screen on one side and video of participants on the other).



It is noted however that increasingly, platforms such as Teams and Zoom are increasing the amount of content they can show on screen, including adding chat text and other functions.

Dual screens may be very useful for video conferences but may not be as functional for a local presentation where video conferencing will not be used. As neither of the screens are centred to the viewing area, presentation content tends to be shown on both displays, resulting in a duplicated image.

It should be noted that in some screen arrangements the "shared screen" content will be shrunk (compared to the total screen area) to accommodate other content.





In many meeting rooms it might therefore be preferable to use a single large(r) display for both presentation and video conferencing. A typical single screen content arrangement is shown below



Cameras

LTU rooms use cameras primarily to show what is happening inside the room to the remote participants in video conferencing sessions. In most rooms the camera will be located under the display(s) and point back at the audience in the room. Some larger rooms will have additional cameras (that might be the main camera) pointing towards the front of the room to capture a presenter standing next to (or under) the room displays.

Equipment You Might Use

	Student (or Meeting Room) Camera	Student cameras typically point from the front (or side) wall of the spaces back at the seated audience. The cameras may take a variety of forms, however in larger spaces they are typically PTZ Cameras that can move to cover a large area of the room.
	Presenter Camera	Cameras pointing toward the front of the room and typically mounted to the opposite wall or ceiling. Cameras will typically have PTZ functionality and may use auto framing or speaker tracking to automatically ensure the camera is always pointing at the presenter, even if they walk around.
	Cameras Integrated into Soundbars	Smaller meeting rooms will use All-In-One (AIO) soundbars which will include a camera. These cameras typically have auto framing to change which part of the is presented to the video conferencing system.
	Whiteboard Camera	A specialist camera mounted above a physical whiteboard capturing the content drawn on it. This allows content drawn on a whiteboard to be shared to a video conferencing call.

Camera Ideas To Understand

Selecting the Right Camera

Every camera has performance characteristics that should be kept in mind when selecting a solution for a room. Each camera has a given **field of view** that defines how wide of an angle it can capture in the room. Cameras also have a characteristic **focal length** which describes how far away target object should be. For some applications, these limitations may be overcome through the use functions such as **PTZ** (Pan – the ability to move side to side; Tilt – the ability to tilt up/down; Zoom – the ability to change the focal length and zoom of the camera).

Multi-focus framing

In an effort to present local participants equally with those attending remotely to meetings, some cameras will be capable of framing each local participant individually and placing them side by side.



Auto Framing

Many video cameras have quite wide fields of view which means they can capture much of the room. This can often result in participants appearing further away from the camera than they are, with features and gestures appearing indistinct. Auto-framing uses a combination of visual information (perhaps from another camera lens) and audio cues (from microphones) to automatically “frame up” the current activity in a room. This activity can be a single person talking, a small group, or the whole room depending on how many people are talking or moving around at a time.



Speaker Tracking

This is similar to auto-framing in many ways however it tends to relate to tracking a presenter or speaker who is further away from the camera. A camera with a longer focal length is used that physically moves (via Pan/Tilt) to maintain focus on a moving presenter. Many speaker tracking systems are cued to a location when a speaker talks into a microphone in a location. They may also use an additional fixed camera lens to track a moving presenter and cue the main PTZ to that location.

Audio

The audio system within a room performs two functions: it plays back content to individuals present in the room, and it captures local sound to transmit to video conferencing systems. The systems that make this happen can be quite complex and sometimes involve multiple components that you might not see. Key to successfully designing an audio system is ensuring that an even level of sound is reproduced throughout the listening area and unwanted acoustic effects are minimised. As many microphones are not optimised for certain applications, a wide variety of microphone types will be used to achieve all the functionality required.

Equipment You Might Use

 Ceiling	Ceiling Recess Loudspeakers	These loudspeakers are typically mounted above the whole of the listening area. They are good for producing an even coverage of sound. Although they can play back all sorts of audio content they are not best suited to high-output audio or that requiring a lot of bass frequencies such as Films or music. Typically used for video conferencing and general meeting rooms.
 FOH	Front of House Loudspeakers	Typically surface mounted loudspeakers located adjacent to the display area. These are better at reproducing audio for films and music content than ceiling recess loudspeakers as they tend to operate in a larger range of frequencies and at higher outputs. Typically used for presentation content in larger or high-end presentation spaces.
 Soundbar	Soundbar Loudspeaker	Loudspeakers integrated into the All-In-One (AIO) Soundbar mounted below the display in smaller meeting rooms. Typically fine for general use and effectively reproduce speech for video conferencing. Can't be effectively used in larger rooms as coverage does not remain even from front to back of the room.
 Tabletop	Table Top Microphone	Small boundary microphone located on table top for conferencing. These are typically subject to be covered by papers on the table or obstructed by objects such as laptop screens, however they do effectively get the microphone close to the local speakers which may be beneficial in acoustically difficult spaces.
 Ceiling	Ceiling Microphones	Large plate microphones recessed into or suspended below the ceiling. These are actually arrays of individual microphones that can be combined together using digital processing to "steer" the microphone around the room a pick-up different speakers in different locations. Very effective for conferencing but are not suitable for most "voice-lift" applications.
 Soundbar	Soundbar Microphone	All-In-One (AIO) soundbars contain microphone arrays that can be used for video conferencing. Tend to be effective in small rooms but struggle as the speakers move further away with increasing room (and table) size.
 Wireless	Wireless (Radio) Microphones	Wireless microphones that can be worn by presenters or carried by hand. May be used for both local "voice-lift" and remote conferencing. These have the disadvantage that users have to actively retrieve them, put them on (or hold in their hand) to use them. There tend to be up to 2 channels of wireless mics in larger rooms so they can't amplify every sound in the space equally.

Audio Ideas To Understand

DSP (Digital Signal Processor)

Audio signals tend to require a degree of control and optimisation to function well in a space. For simple rooms the Video conferencing system has enough functionality to provide this control, however complicated spaces may require a dedicated Audio DSP. This device provides control over routing (which audio sources are sent where), level (how loud things are) and other audio processing such as filters and equalisation (EQ). These functions are used in combination to ensure the audio system is optimised for the room. DSPs may also provide AEC processing for complex spaces, however please note that DSPs provide a specific number of AEC channels (quantity varies by DSP model).

AEC (Acoustic Echo Cancellation)

Microphones in an AV room will naturally pick up a variety of sounds in that space. When a video conference call is active, the microphones can pick up and try to amplify the noise made by the loudspeakers in the same room, which may include speakers talking from a remote location. AEC is a digital process that prevents sounds from the video conferencing call from being transmitted by the audio system to the far end, prevent echoes, feedback and other unwanted acoustic anomalies.

AEC may be integrated into the Video Conferencing system for relatively simple rooms (such as AIO Soundbars) or provided by an external DSP for more complicated spaces.

Voice Lift

This describes the function of using a microphone located inside a space to amplify a speaker's voice within that space. This is generally achieved by using a wireless microphone located at the speaker (as they are wearing it or holding it to their mouth) or by using a microphone in a fixed location (e.g. a lectern microphone).

Acoustic Reverberation (Reverb)

This is the persistence of sound in a space after it is produced caused by reflectance of hard surfaces in the room. Every space will reverberate to some degree, however excessive reverb can have a detrimental impact on the sound of a space. This impact can include making sources such as loudspeakers sound less clear and precise as well as having a significant impact on the clarity of speech captured by microphones.

Reverb should generally be minimised through the use of acoustically absorbate surfaces such as soft finishes or dedicated absorptive panels.

Feedback

Acoustic feedback is the loud squealing noise that some sound systems make when a microphone is turned on. This is caused by the sound going into the microphone, being reproduced by a local loudspeaker and going back into the microphone again. This process results in the rapid increase in level and the unpleasant noise created by feedback.

Feedback can be managed by careful design of the audio system. Microphones that are used for Voice Lift should be carefully selected and positioned in such a way as to maximise the available amplification of the intended source (generally someone speaking) before the system feeds back on itself. These consideration generally make microphones that capture a large area (such as table top or ceiling microphones) unsuitable for voice lift functions.

UC Engine

The UC (Unified Communications) Engine is a computer that performs all the processing for the room's conferencing system. It's an instance of a Video Conferencing Codec (abbreviation of the words "coder" and "decoder", or "compressor" and "decompressor") which is designed specifically for video conferencing.

Equipment You Might Use



UC Engine

All peripheral components (cameras, loudspeakers, displays, etc.) receive and send video / audio signals through the UC Engine. Web conferencing does not require a separate UC Engine as it uses a user's laptop, but any room that is able to create its own meeting; and has its own calendar requires this component.



3rd Party UC Engine

Third-party UC engine is a term used to describe software and firmware that has been certified for use on a commentators platform. The audio-visual systems can be used to join a meeting with a third-party UC platform without the need for a laptop in BYOD mode. As an example, if we install a UC Engine (MS Teams) this UC Engine provided by Microsoft is certified to operate a Zoom meeting room using a version of Zoom Room software with less functionality, the same audio-visual components and peripherals in the room are used including the touch panel, one button join and scheduling panels. Note: Not all peripherals can be operated in 3rd party UC Engine mode (eg Whiteboard camera), experience will vary based on the technology installed in the room.



BYOD UC Engine

BYOD UC Engine is a feature that allows conference room visitors to connect their laptop to the system to use their own UC conference platform, typically software installed on a laptop. The system's built-in UC Engine device releases control and switches to the connected laptop's UC platform and returns to the built-in device when disconnected.

UC Ideas To Understand

One Button Join

This function allows users to turn on the AV systems, including all components needed for an video conference and join their scheduled meeting simply by clicking one button on the touch panel.

This occurs because the UC Engine is integrated into the room where the video conference is to occur. By inviting the room to the meeting, the UC Engine will receive the meeting details, recognise it as a video call and setup the one touch join. To ensure this function is available, the space where the video call is to occur should be added to the calendar invitation.

Wireless Content Sharing

To share content wirelessly to a video conference call, users should join that call on the device they wish to share. This can be done either from the application or from a web browser by clicking on the link in the call information in the calendar invitation. Users can then initiate a screen share to the call in the normal way. This approach allows presentation wirelessly when a call is active without the need for additional hardware or software.

Far End Participants

Far End Participants are members of the meeting who are not in the meeting room. They could be joining via their laptop or through another video conferencing system. Their location can be regarded as "on the other side of the call."

UC Engine Available at LTU







Control

Audio-visual control is the base for all transmitting and receiving of video and audio signals within an AV space, from one component to another. Control can be provided in hardware format such as control processors, or in software format through virtual control.

Control points such as touch panels or button panel controllers allow users to control the room to suit their needs.

Equipment You Might Use

 Touch Panel	Touch Panel Controllers Touch panels form the user interface of the AV room control system. The “buttons” on the screen are designed to only provide control over the elements that you will need to run a room. The rest of the settings, power on/off etc are all handled automatically in the background by the control system, making the system easier to operate and reducing the requisite knowledge needed by users.
 Booking Panel	Room Booking Panel Room booking panels are the user interface for the room booking system. These panels show room availability and may also have the ability to allow users to book ad-hoc.
 Control Processor	Control Processor The Control Processor can be thought of as the command centre of the AV system. It connects and controls all the AV components in a space. The touch panel is the front-end user interface of the control processor.
 Docking Station	USB Docking Station Docking stations allow users to connect their laptop to to the display as well as any USB peripheral devices such keyboard & mouse, cameras, microphones and loudspeakers via a single USB cable. Where these are used in private offices, the dock will also allow the laptop to connect to the LAN via a wired connection rather than wire Wifi.

Control Ideas To Understand

AV over IP (Audio-visual over Internet Protocol)

Also written as AVoIP, is the transmission of audio-visual data over network such as a LAN, WAN or the internet. This is achieved with devices that allow for this type of signal transmission only. Transmission occurs over Category cabling.

Because this type of signal transfer occurs over the network, bandwidth considerations must be taken into account and coordination with IT services.

This method is becoming more prevalent over traditional ways of video and audio signal transmission, such as over coaxial cabling.

Slide 11

AS0

Add description of a docking station

Adriano Salutari, 2023-09-18T00:34:27.080

AV Design Guidelines

Office / Hot desk / Collaboration Spaces

AV Design Guidelines

Office / Hot desk Spaces with integrated dock

Office / Hot desk

OCH_01_024N_01

General Description

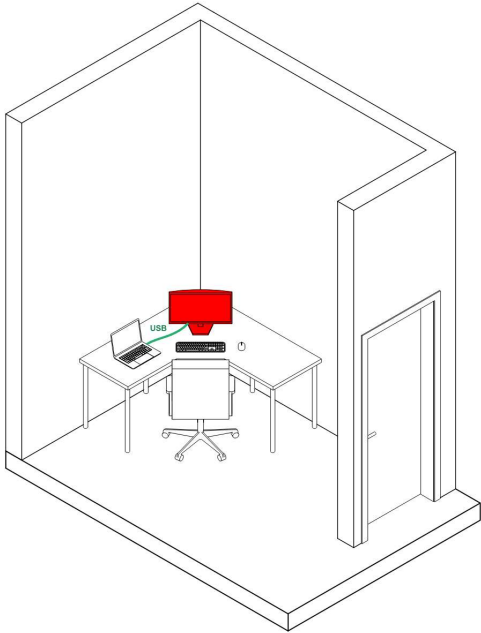
Catering for private conversations. Due to the size of these spaces being less than 8sq meters, they are suited to appliances that are freestanding on a desk or bench.

A display with integrated docking station and is connected to a BYOD laptop via a USBC cable. The display automatically powers on when detecting a device has been plugged into the USBC. The displays automatically power down after a timeout period. Power for the BYOD devices is delivered via the USBC cable (60w), alternatively the desk where the BYOD device is to be situated is fitted with a 240v power point to allow for the use of a laptop/device power supply.

ROOM SPECIFICATION	General Room Type	Office
	Seating Capacity	1
	Area in m2	8
	Custom Configuration Available	No
DISPLAY	Main Display	Desktop Display
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	24 Inch
	Display Inputs	USB-C for BYOD
AUDIO	Loudspeaker Type	N/A
	Conferencing Microphones	N/A
	Voicelift	N/A
	Wireless Microphones	N/A
	Hearing Augmentation	N/A
CAMERA	Conferencing Camera	No
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	N/A
	Room Booking Panel	No
	BYOD Conferencing	No
	Remote Monitoring	N/A
	Motion Sensor	N/A
	Docking Station	Integrated to Display
ADD ONS	Document Camera	N/A
	Echo360 Recording	N/A

Estimated Cost (per room)
\$XXXXX- \$YYYYY

Room Arrangements



Office / Hot desk

OCH_02_024N_01

General Description

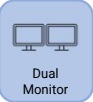
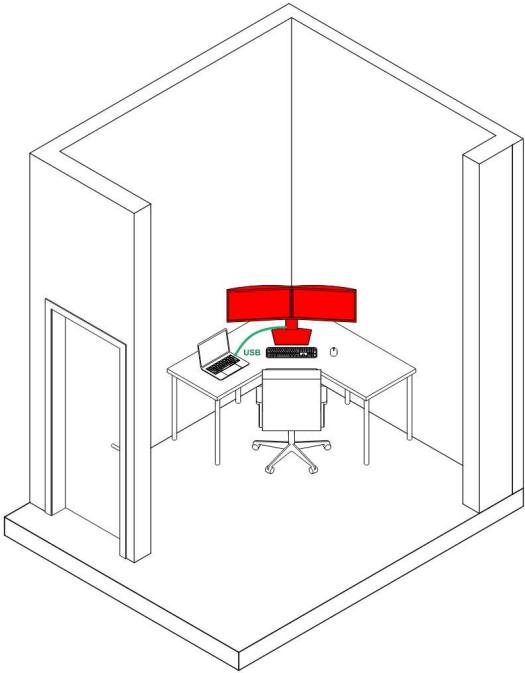
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Dual displays with integrated docking station and is connected to a BYOD laptop via a USBC cable. The display automatically powers on when detecting a device has been plugged into the USBC. The displays automatically power down after a timeout period. Power for the BYOD devices is delivered via the USBC cable (60w), alternatively the desk where the BYOD device is to be situated is fitted with a 240v power point to allow for the use of a laptop/device power supply.

ROOM SPECIFICATION	General Room Type	Office
	Seating Capacity	1
	Area in m2	8
	Custom Configuration Available	No
DISPLAY	Main Display	Dual Desktop Display
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	24 Inch
	Display Inputs	USB-C for BYOD
AUDIO	Loudspeaker Type	N/A
	Conferencing Microphones	N/A
	Voicelift	N/A
	Wireless Microphones	N/A
	Hearing Augmentation	N/A
CAMERA	Conferencing Camera	No
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	N/A
	Room Booking Panel	No
	BYOD Conferencing	No
	Remote Monitoring	N/A
	Motion Sensor	N/A
	Docking Station	Yes
ADD ONS	Document Camera	N/A
	Echo360 Recording	N/A

Estimated Cost (per room)
\$XXXXX- \$YYYYY

Room Arrangements



Office / Hot desk

OCH_01_027N_01

General Description

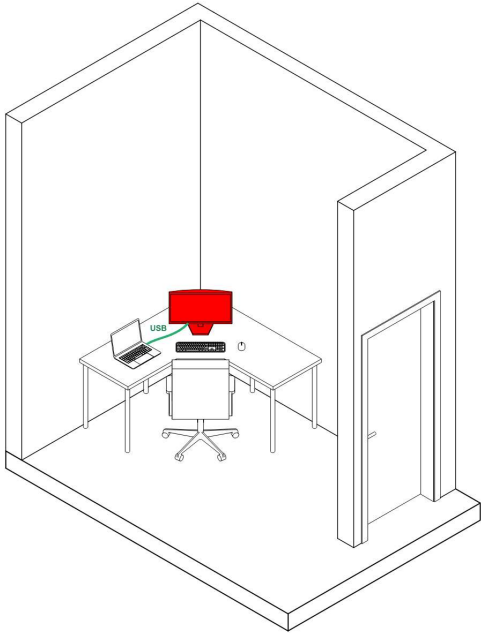
Catering for private conversations. Due to the size of these spaces being less than 8sq meters, they are suited to appliances that are freestanding on a desk or bench.

A display with integrated docking station and is connected to a BYOD laptop via a USBC cable. The display automatically powers on when detecting a device has been plugged into the USBC. The displays automatically power down after a timeout period. Power for the BYOD devices is delivered via the USBC cable (60w), alternatively the desk where the BYOD device is to be situated is fitted with a 240v power point to allow for the use of a laptop/device power supply.

ROOM SPECIFICATION	General Room Type	Office
	Seating Capacity	1
	Area in m2	8
	Custom Configuration Available	No
DISPLAY	Main Display	Desktop Display
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	27 Inch
	Display Inputs	USB-C for BYOD
AUDIO	Loudspeaker Type	N/A
	Conferencing Microphones	N/A
	Voicelift	N/A
	Wireless Microphones	N/A
	Hearing Augmentation	N/A
CAMERA	Conferencing Camera	N/A
	Other Camera Options	N/A
	Additional Options	N/A
CONTROL	Controller	N/A
	Room Booking Panel	No
	BYOD Conferencing	N/A
	Remote Monitoring	N/A
	Motion Sensor	N/A
	Docking Station	Yes
ADD ONS	Document Camera	N/A
	Echo360 Recording	N/A

Estimated Cost (per room)
\$XXXXX- \$YYYYY

Room Arrangements



Office / Hot desk

OCH_02_027N_01

General Description

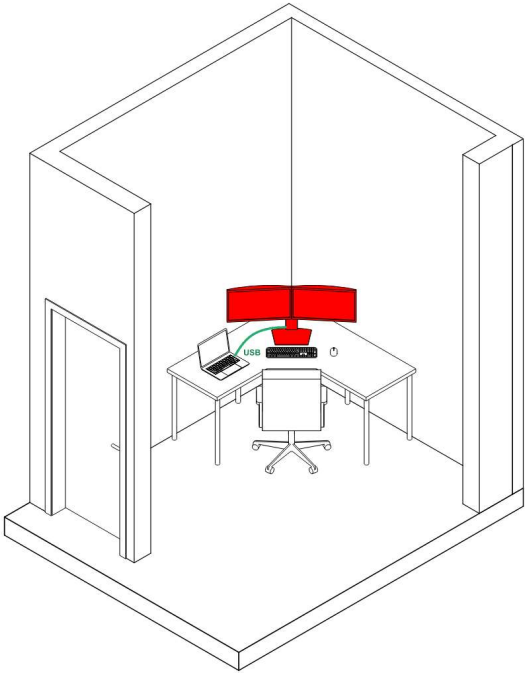
Catering for private conversations. Due to the size of these spaces being less than 8sq meters, they are suited to appliances that are freestanding on a desk or bench.

A display with integrated docking station and is connected to a BYOD laptop via a USB-C cable. The display automatically powers on when detecting a device has been plugged into the USB-C. The displays automatically power down after a timeout period. Power for the BYOD devices is delivered via the USB-C cable (60w), alternatively the desk where the BYOD device is to be situated is fitted with a 240v power point to allow for the use of a laptop/device power supply.

ROOM SPECIFICATION	General Room Type	Office
	Seating Capacity	1
	Area in m2	8
	Custom Configuration Available	No
DISPLAY	Main Display	Desktop Display
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	27 Inch
	Display Inputs	USB-C for BYOD
AUDIO	Loudspeaker Type	N/A
	Conferencing Microphones	N/A
	Voicelift	N/A
	Wireless Microphones	N/A
	Hearing Augmentation	N/A
CAMERA	Conferencing Camera	N/A
	Other Camera Options	N/A
	Additional Options	N/A
CONTROL	Controller	N/A
	Room Booking Panel	No
	BYOD Conferencing	N/A
	Remote Monitoring	N/A
	Motion Sensor	N/A
	Docking Station	Yes
ADD ONS	Document Camera	N/A
	Echo360 Recording	N/A

Estimated Cost (per room)
\$XXXXX- \$YYYYY

Room Arrangements



Desktop
Monitor

Office / Hot desk

OCH_01_032N_01

General Description

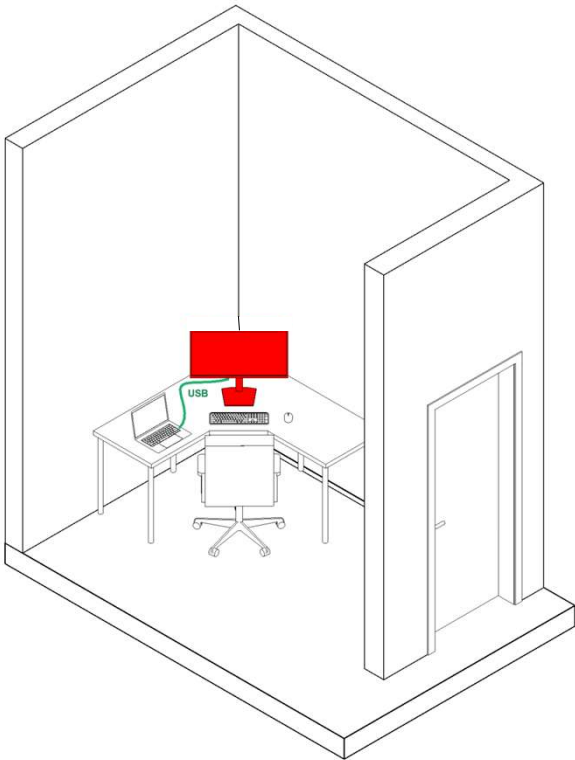
Catering for private conversations. Due to the size of these spaces being less than 8sq meters, they are suited to appliances that are freestanding on a desk or bench.

A display with integrated docking station and is connected to a BYOD laptop via a USBC cable. The display automatically powers on when detecting a device has been plugged into the USBC. The displays automatically power down after a timeout period. Power for the BYOD devices is delivered via the USBC cable (60w), alternatively the desk where the BYOD device is to be situated is fitted with a 240v power point to allow for the use of a laptop/device power supply.

ROOM SPECIFICATION	General Room Type	Office
	Seating Capacity	1
	Area in m2	8
	Custom Configuration Available	No
DISPLAY	Main Display	Single 4K Desktop Display
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	32 Inch
	Display Inputs	USB-C for BYOD
AUDIO	Loudspeaker Type	N/A
	Conferencing Microphones	N/A
	Voicelift	N/A
	Wireless Microphones	N/A
	Hearing Augmentation	N/A
CAMERA	Conferencing Camera	N/A
	Other Camera Options	N/A
	Additional Options	N/A
CONTROL	Controller	N/A
	Room Booking Panel	No
	BYOD Conferencing	USB-C
	Remote Monitoring	N/A
	Motion Sensor	N/A
	Docking Station	N/A
ADD ONS	Document Camera	N/A
	Echo360 Recording	N/A

Estimated Cost (per room)
\$XXXXX- \$YYYYY

Room Arrangements



Example Room: TBC

Office / Hot desk

OCH_01_043N_01

General Description

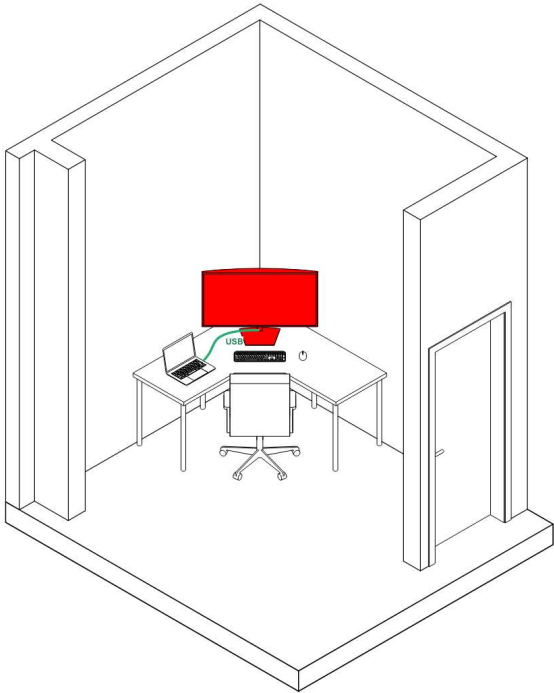
Catering for private conversations. Due to the size of these spaces being less than 8sq meters, they are suited to appliances that are freestanding on a desk or bench.

A display with integrated docking station and is connected to a BYOD laptop via a USBC cable. The display automatically powers on when detecting a device has been plugged into the USBC. The displays automatically power down after a timeout period. Power for the BYOD devices is delivered via the USBC cable (60w), alternatively the desk where the BYOD device is to be situated is fitted with a 240v power point to allow for the use of a laptop/device power supply.

ROOM SPECIFICATION	General Room Type	Office
	Seating Capacity	1
	Area in m2	8
	Custom Configuration Available	No
DISPLAY	Main Display	Single 4K Desktop Display
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	43 Inch
	Display Inputs	USB-C for BYOD
AUDIO	Loudspeaker Type	N/A
	Conferencing Microphones	N/A
	Voicelift	N/A
	Wireless Microphones	N/A
	Hearing Augmentation	N/A
CAMERA	Conferencing Camera	N/A
	Other Camera Options	N/A
	Additional Options	N/A
CONTROL	Controller	N/A
	Room Booking Panel	No
	BYOD Conferencing	USB-C
	Remote Monitoring	N/A
	Motion Sensor	N/A
	Docking Station	N/A
ADD ONS	Document Camera	N/A
	Echo360 Recording	N/A

Estimated Cost (per room)
\$XXXXX- \$YYYYY

Room Arrangements



AV Design Guidelines

Legacy: Office / Hot desk Spaces with Docking Stations

Office / Hot desk

OCH_01_024N_01d

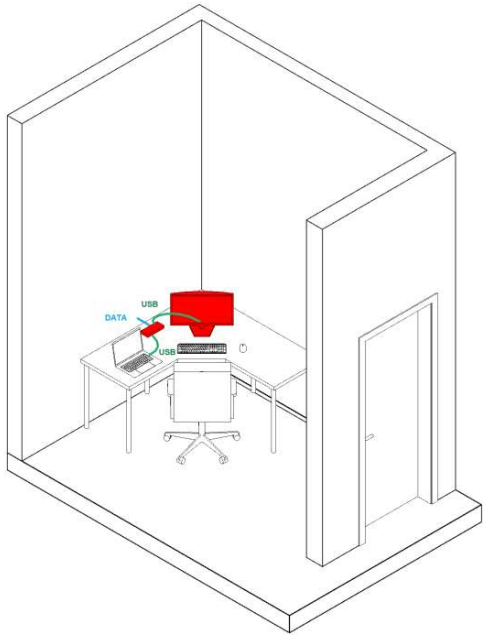
General Description

Catering for private conversations. Due to the size of these spaces being less than 8sq meters, they are suited to appliances that are freestanding on a desk or bench.

A display with integrated docking station and is connected to a BYOD laptop via a USBC cable. The display automatically powers on when detecting a device has been plugged into the USBC. The displays automatically power down after a timeout period. Power for the BYOD devices is delivered via the USBC cable (60w), alternatively the desk where the BYOD device is to be situated is fitted with a 240v power point to allow for the use of a laptop/device power supply.

ROOM SPECIFICATION	General Room Type	Office
	Seating Capacity	1
	Area in m2	8
	Custom Configuration Available	No
DISPLAY	Main Display	Desktop Display
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	24 Inch
	Display Inputs	USB-C for BYOD
AUDIO	Loudspeaker Type	N/A
	Conferencing Microphones	N/A
	Voicelift	N/A
	Wireless Microphones	N/A
	Hearing Augmentation	N/A
CAMERA	Conferencing Camera	No
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	N/A
	Room Booking Panel	No
	BYOD Conferencing	No
	Remote Monitoring	N/A
	Motion Sensor	N/A
	Docking Station	Integrated to Display
ADD ONS	Document Camera	N/A
	Echo360 Recording	N/A

Room Arrangements



Office / Hot desk

OCH_02_024C_01d

General Description

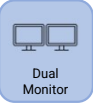
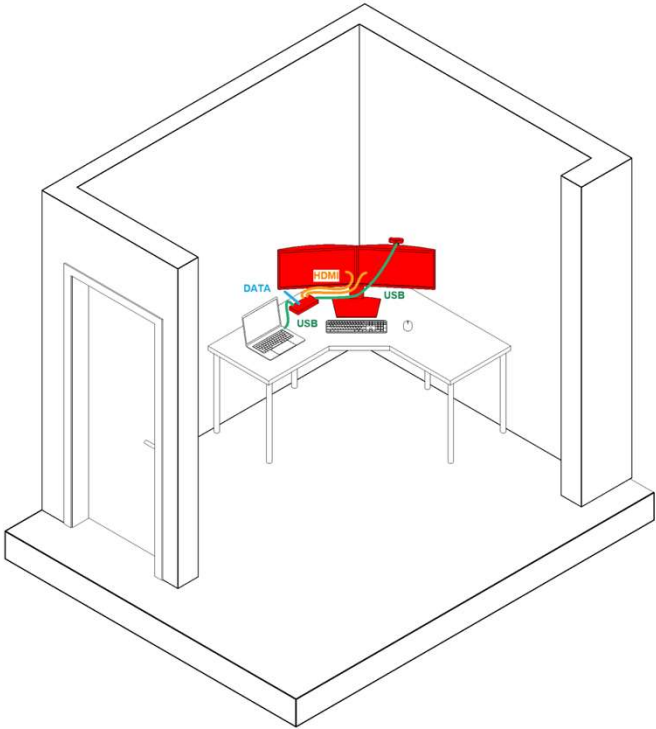
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ROOM SPECIFICATION	General Room Type	Office
	Seating Capacity	1
	Area in m2	8
	Custom Configuration Available	No
DISPLAY	Main Display	Dual Desktop Display
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	24 Inch
	Display Inputs	USB-C for BYOD
AUDIO	Loudspeaker Type	N/A
	Conferencing Microphones	N/A
	Voicelift	N/A
	Wireless Microphones	N/A
	Hearing Augmentation	N/A
CAMERA	Conferencing Camera	No
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	N/A
	Room Booking Panel	No
	BYOD Conferencing	No
	Remote Monitoring	N/A
	Motion Sensor	N/A
	Docking Station	Yes
ADD ONS	Document Camera	N/A
	Echo360 Recording	N/A

Estimated Cost (per room)
\$XXXXX- \$YYYYY

Room Arrangements



Office / Hot desk

OCH_01_027N_01d

General Description

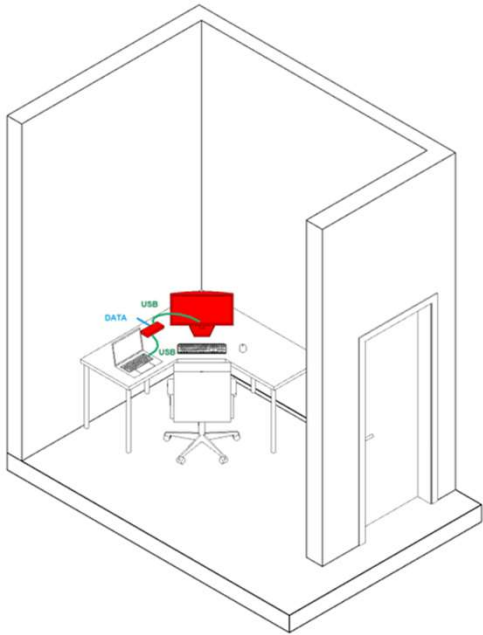
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ROOM SPECIFICATION	General Room Type	Office
	Seating Capacity	1
	Area in m2	8
	Custom Configuration Available	No
DISPLAY	Main Display	Desktop Display
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	27 Inch
	Display Inputs	USB-C for BYOD
AUDIO	Loudspeaker Type	N/A
	Conferencing Microphones	N/A
	Voicelift	N/A
	Wireless Microphones	N/A
	Hearing Augmentation	N/A
CAMERA	Conferencing Camera	N/A
	Other Camera Options	N/A
	Additional Options	N/A
CONTROL	Controller	N/A
	Room Booking Panel	No
	BYOD Conferencing	N/A
	Remote Monitoring	N/A
	Motion Sensor	N/A
	Docking Station	Yes
ADD ONS	Document Camera	N/A
	Echo360 Recording	N/A

Estimated Cost (per room)
\$XXXXX- \$YYYYY

Room Arrangements



Office / Hot desk

OCH_02_027N_01d

General Description

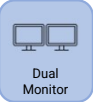
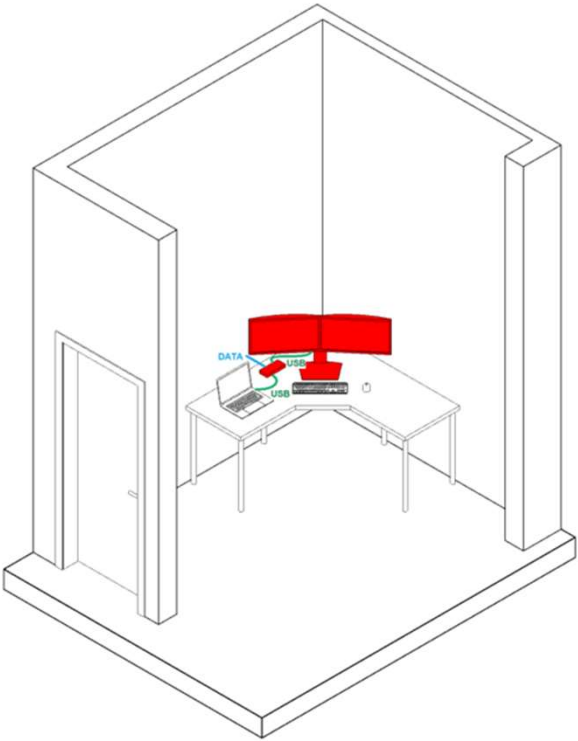
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ROOM SPECIFICATION	General Room Type	Office
	Seating Capacity	1
	Area in m2	8
	Custom Configuration Available	No
DISPLAY	Main Display	Dual Desktop Display
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	27 Inch
	Display Inputs	USB-C for BYOD
AUDIO	Loudspeaker Type	N/A
	Conferencing Microphones	N/A
	Voicelift	N/A
	Wireless Microphones	N/A
	Hearing Augmentation	N/A
CAMERA	Conferencing Camera	N/A
	Other Camera Options	N/A
	Additional Options	N/A
CONTROL	Controller	N/A
	Room Booking Panel	No
	BYOD Conferencing	N/A
	Remote Monitoring	N/A
	Motion Sensor	N/A
	Docking Station	Yes
ADD ONS	Document Camera	N/A
	Echo360 Recording	N/A

Estimated Cost (per room)
\$XXXXX- \$YYYYY

Room Arrangements



Office / Hot desk

OCH_01_043N_01d

General Description

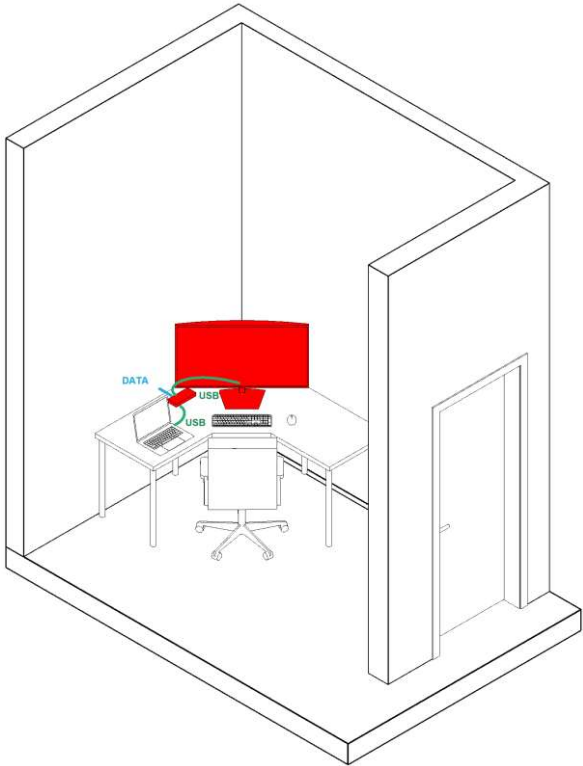
Catering for private conversations. Due to the size of these spaces being less than 8sq meters, they are suited to appliances that are freestanding on a desk or bench.

A display with integrated docking station and is connected to a BYOD laptop via a USB-C cable. The display automatically powers on when detecting a device has been plugged into the USB-C. The displays automatically power down after a timeout period. Power for the BYOD devices is delivered via the USB-C cable (60w), alternatively the desk where the BYOD device is to be situated is fitted with a 240v power point to allow for the use of a laptop/device power supply.

ROOM SPECIFICATION	General Room Type	Office
	Seating Capacity	1
	Area in m2	8
	Custom Configuration Available	No
DISPLAY	Main Display	Single 4K Desktop Display
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	43 Inch
	Display Inputs	USB-C for BYOD
AUDIO	Loudspeaker Type	N/A
	Conferencing Microphones	N/A
	Voicelift	N/A
	Wireless Microphones	N/A
	Hearing Augmentation	N/A
CAMERA	Conferencing Camera	N/A
	Other Camera Options	N/A
	Additional Options	N/A
CONTROL	Controller	N/A
	Room Booking Panel	No
	BYOD Conferencing	USB-C
	Remote Monitoring	N/A
	Motion Sensor	N/A
	Docking Station	N/A
ADD ONS	Document Camera	N/A
	Echo360 Recording	N/A

Estimated Cost (per room)
\$XXXXX- \$YYYYY

Room Arrangements

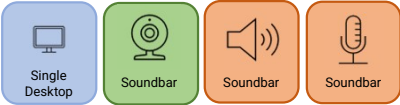


AV Design Guidelines

Collaboration Spaces

Collaboration

OCH_01_024C_01



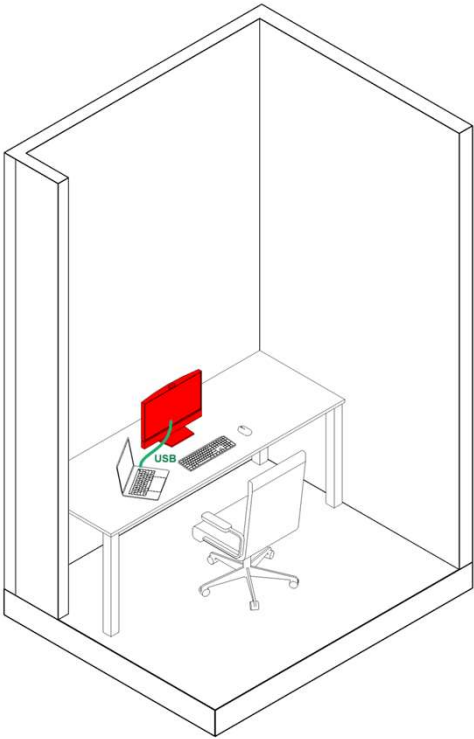
General Description

Catering for private conversations. Due to the size of these spaces being less than 8sq meters, they are suited to appliances that are freestanding on a desk or bench.

Catering for private conversations. Due to the size of these spaces, they are suited to appliances that are freestanding on a desk. The AV solution consists of an All-In-One AIO display with integrated sound bar, webcam solution and is connected to a BYOD laptop via a USBC cable. The AV solution enhances the capability of the BYOD device enabling participant to share and work with remote others on a larger display. Software installed on the BYOD device operates the soundbar, microphone, and webcam. The display automatically powers on when detecting a device has been plugged into the USBC. The displays automatically power down after a timeout period. Power for the BYOD devices is delivered via the USBC cable (60w), also the desk where the BYOD device is to be situated is fitted with a 240v power point to allow for the use of a laptop/device power supply.

ROOM SPECIFICATION	General Room Type	Office
	Seating Capacity	1
	Area in m2	8
	Custom Configuration Available	No
DISPLAY	Main Display	Single 1080p Desktop Display
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	24 Inch
	Display Inputs	USB-C for BYOD
AUDIO	Loudspeaker Type	Integrated Soundbar
	Conferencing Microphones	Soundbar
	Voicelift	N/A
	Wireless Microphones	N/A
	Hearing Augmentation	N/A
CAMERA	Conferencing Camera	Integrated to Soundbar
	Other Camera Options	N/A
	Additional Options	N/A
CONTROL	Controller	N/A
	Room Booking Panel	No
	BYOD Conferencing	USB-C
	Remote Monitoring	N/A
	Motion Sensor	N/A
ADD ONS	Document Camera	N/A
	Echo360 Recording	N/A

Room Arrangements



Collaboration

OCH_02_024C_01

General Description

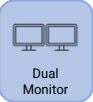
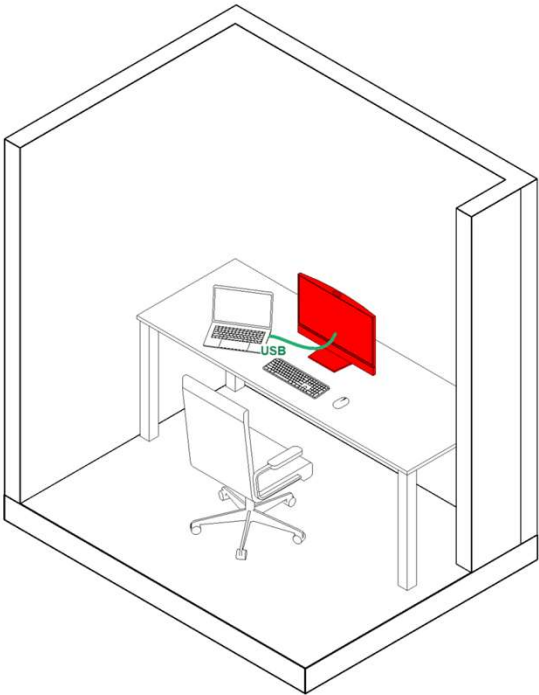
Catering for private conversations. Due to the size of these spaces being less than 8sq meters, they are suited to appliances that are freestanding on a desk or bench.

Dual displays with integrated docking station and is connected to a BYOD laptop via a USBC cable. The display automatically powers on when detecting a device has been plugged into the USBC. The displays automatically power down after a timeout period. Power for the BYOD devices is delivered via the USBC cable (60w), alternatively the desk where the BYOD device is to be situated is fitted with a 240v power point to allow for the use of a laptop/device power supply.

ROOM SPECIFICATION	General Room Type	Office
	Seating Capacity	1
	Area in m2	8
	Custom Configuration Available	No
DISPLAY	Main Display	Dual Desktop Display
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	24 Inch
	Display Inputs	USB-C for BYOD
AUDIO	Loudspeaker Type	N/A
	Conferencing Microphones	N/A
	Voicelift	N/A
	Wireless Microphones	N/A
	Hearing Augmentation	N/A
CAMERA	Conferencing Camera	Webcam
	Other Camera Options	N/A
	Additional Options	N/A
CONTROL	Controller	N/A
	Room Booking Panel	No
	BYOD Conferencing	N/A
	Remote Monitoring	N/A
	Motion Sensor	N/A
	Docking Station	Yes
ADD ONS	Document Camera	N/A
	Echo360 Recording	N/A

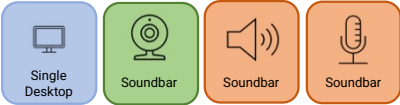
Estimated Cost (per room)
\$XXXXX- \$YYYYY

Room Arrangements



Collaboration

OCH_01_027C_01



General Description

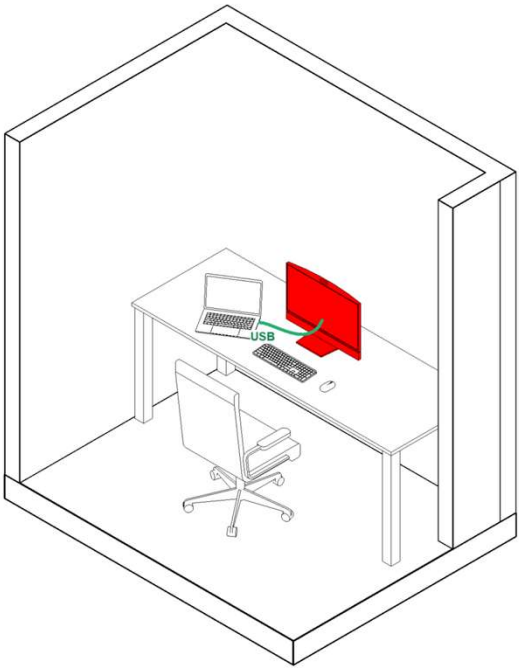
Catering for private conversations. Due to the size of these spaces being less than 8sq meters, they are suited to appliances that are freestanding on a desk or bench.

Catering for private conversations. Due to the size of these spaces, they are suited to appliances that are freestanding on a desk. The AV solution consists of an All-In-One AIO display with integrated sound bar, webcam solution and is connected to a BYOD laptop via a USBC cable. The AV solution enhances the capability of the BYOD device enabling participant to share and work with remote others on a larger display. Software installed on the BYOD device operates the soundbar, microphone, and webcam. The display automatically powers on when detecting a device has been plugged into the USBC. The displays automatically power down after a timeout period. Power for the BYOD devices is delivered via the USBC cable (60w), also the desk where the BYOD device is to be situated is fitted with a 240v power point to allow for the use of a laptop/device power supply.

ROOM SPECIFICATION	General Room Type	Office
	Seating Capacity	1
	Area in m2	8
	Custom Configuration Available	No
DISPLAY	Main Display	Single 1080p Desktop Display
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	27 Inch
AUDIO	Display Inputs	USB-C for BYOD
	Loudspeaker Type	Integrated Soundbar
	Conferencing Microphones	Soundbar
	Voicelift	N/A
	Wireless Microphones	N/A
CAMERA	Hearing Augmentation	N/A
	Conferencing Camera	Integrated to Soundbar
	Other Camera Options	N/A
CONTROL	Additional Options	N/A
	Controller	N/A
	Room Booking Panel	No
	BYOD Conferencing	USB-C
	Remote Monitoring	N/A
ADD ONS	Motion Sensor	N/A
	Docking Station	Integrated to Display
	Document Camera	N/A
	Echo360 Recording	N/A

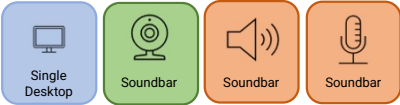
Estimated Cost (per room)
\$XXXXX- \$YYYYY

Room Arrangements



Collaboration

OCH_01_032C_01



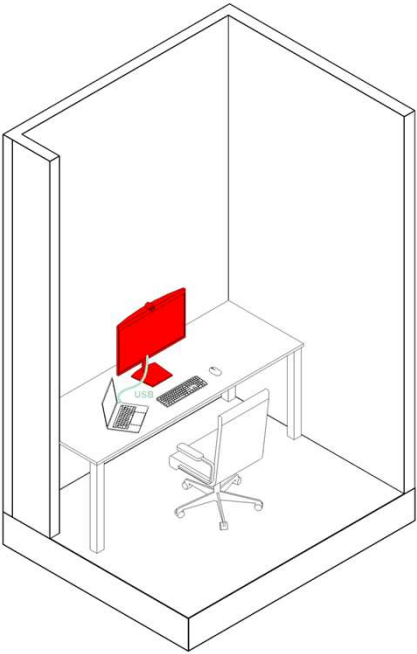
General Description

Catering for private conversations. Due to the size of these spaces being less than 8sq meters, they are suited to appliances that are freestanding on a desk or bench.

Catering for private conversations. Due to the size of these spaces, they are suited to appliances that are freestanding on a desk. The AV solution consists of an All-In-One AIO display with integrated sound bar, webcam solution and is connected to a BYOD laptop via a USB cable. The AV solution enhances the capability of the BYOD device enabling participant to share and work together with remote others on a larger display. Software installed on the BYOD device operates the soundbar, microphone, and webcam. The display automatically powers on when detecting a device has been plugged into the USBC. The displays automatically power down after a timeout period. Power for the BYOD devices is delivered via the USBC cable (60w), also the desk where the BYOD device is to be situated is fitted with a 240v power point to allow for the use of a laptop/device power supply.

ROOM SPECIFICATION	General Room Type	Office
	Seating Capacity	1
	Area in m2	8
	Custom Configuration Available	No
DISPLAY	Main Display	Single 4K Desktop Display
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	32 Inch
	Display Inputs	USB-C for BYOD
AUDIO	Loudspeaker Type	Integrated Soundbar
	Conferencing Microphones	Soundbar
	Voicelift	N/A
	Wireless Microphones	N/A
	Hearing Augmentation	N/A
CAMERA	Conferencing Camera	Integrated to Soundbar
	Other Camera Options	N/A
	Additional Options	N/A
CONTROL	Controller	N/A
	Room Booking Panel	No
	BYOD Conferencing	USB-C
	Remote Monitoring	N/A
	Motion Sensor	N/A
ADD ONS	Document Camera	N/A
	Echo360 Recording	N/A

Room Arrangements



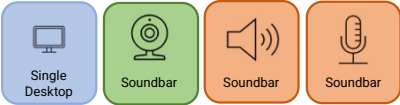
Estimated Cost (per room)
\$XXXXX- \$YYYYY

AV Design Guidelines

Phone Booths

Phone Booth

OCH_01_027C_02



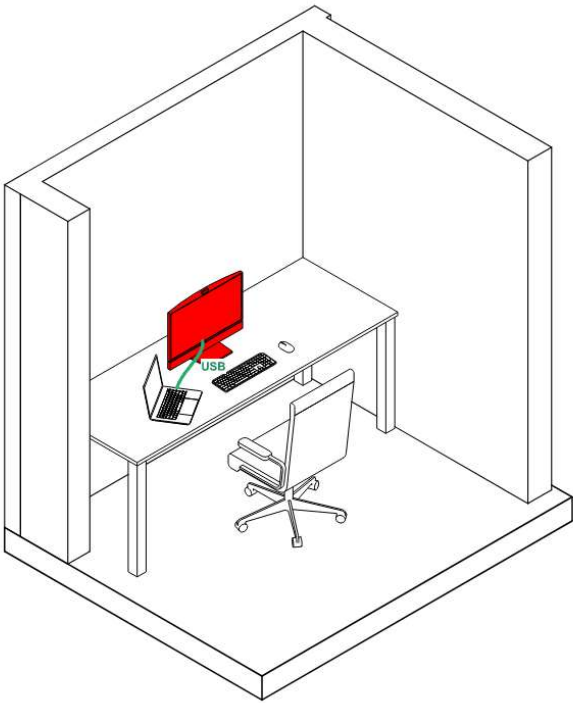
General Description

Catering for private conversations with remote participants.

Catering for private conversations. Due to the size of these spaces, they are suited to appliances that are freestanding on a desk or bench. The AV solution consists of an All-In-One AIO display with integrated sound bar, webcam solution and is connected to a BYOD laptop via a USBC cable. The AV solution enhances the capability of the BYOD device enabling participants to share and work together on a larger display and connect with others remotely using software installed on the BYOD device which operates the soundbar, microphone, and webcam. The display automatically powers on when detecting a device has been plugged into the USBC. The displays automatically power down after a timeout period. Power for the BYOD devices is delivered via the USBC cable (90w), alternatively the desk where the BYOD device is to be situated is fitted with a 240v power point to allow for the use of a laptop/device power supply.

ROOM SPECIFICATION	General Room Type	Phone Booth
	Seating Capacity	1
	Area in m2	8
	Custom Configuration Available	No
DISPLAY	Main Display	1080p Desktop Display
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	27 Inch
	Display Inputs	USB-C for BYOD
AUDIO	Loudspeaker Type	Integrated Soundbar
	Conferencing Microphones	Soundbar
	Voicelift	N/A
	Wireless Microphones	N/A
	Hearing Augmentation	N/A
CAMERA	Conferencing Camera	Integrated to Soundbar
	Other Camera Options	N/A
	Additional Options	N/A
CONTROL	Controller	N/A
	Room Booking Panel	No
	BYOD Conferencing	USB-C
	Remote Monitoring	N/A
	Motion Sensor	N/A
ADD ONS	Document Camera	N/A
	Echo360 Recording	N/A

Room Arrangements



Phone Booth

OCH_01_032C_02

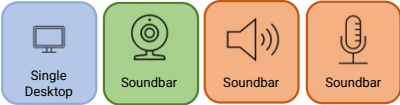
General Description

Catering for private conversations with remote participants.

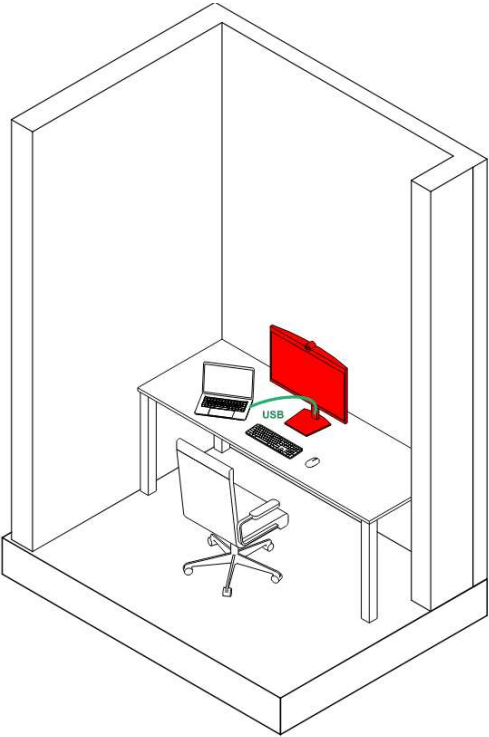
Catering for private conversations. Due to the size of these spaces, they are suited to appliances that are freestanding on a desk or bench. The AV solution consists of an All-In-One AIO display with integrated sound bar, webcam solution and is connected to a BYOD laptop via a USBC cable. The AV solution enhances the capability of the BYOD device enabling participants to share and work together on a larger display and connect with others remotely using software installed on the BYOD device which operates the soundbar, microphone, and webcam. The display automatically powers on when detecting a device has been plugged into the USBC. The displays automatically power down after a timeout period. Power for the BYOD devices is delivered via the USBC cable (90w), alternatively the desk where the BYOD device is to be situated is fitted with a 240v power point to allow for the use of a laptop/device power supply.

ROOM SPECIFICATION	General Room Type	Phone Booth
	Seating Capacity	1
	Area in m2	8
	Custom Configuration Available	No
DISPLAY	Main Display	4K Desktop Display
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	32 Inch
	Display Inputs	USB-C for BYOD
AUDIO	Loudspeaker Type	Integrated Soundbar
	Conferencing Microphones	Soundbar
	Voicelift	N/A
	Wireless Microphones	N/A
	Hearing Augmentation	N/A
CAMERA	Conferencing Camera	Integrated to Soundbar
	Other Camera Options	N/A
	Additional Options	N/A
CONTROL	Controller	N/A
	Room Booking Panel	No
	BYOD Conferencing	USB-C
	Remote Monitoring	N/A
	Motion Sensor	N/A
ADD ONS	Document Camera	N/A
	Echo360 Recording	N/A

Estimated Cost (per room)
\$XXXXX- \$YYYYY



Room Arrangements



AV Design Guidelines

Meeting Rooms

AV Design Guidelines

Mobile Collaboration Spaces

Collaboration

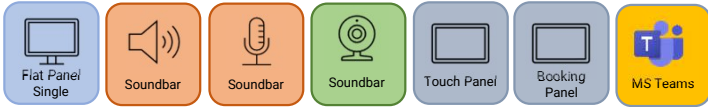
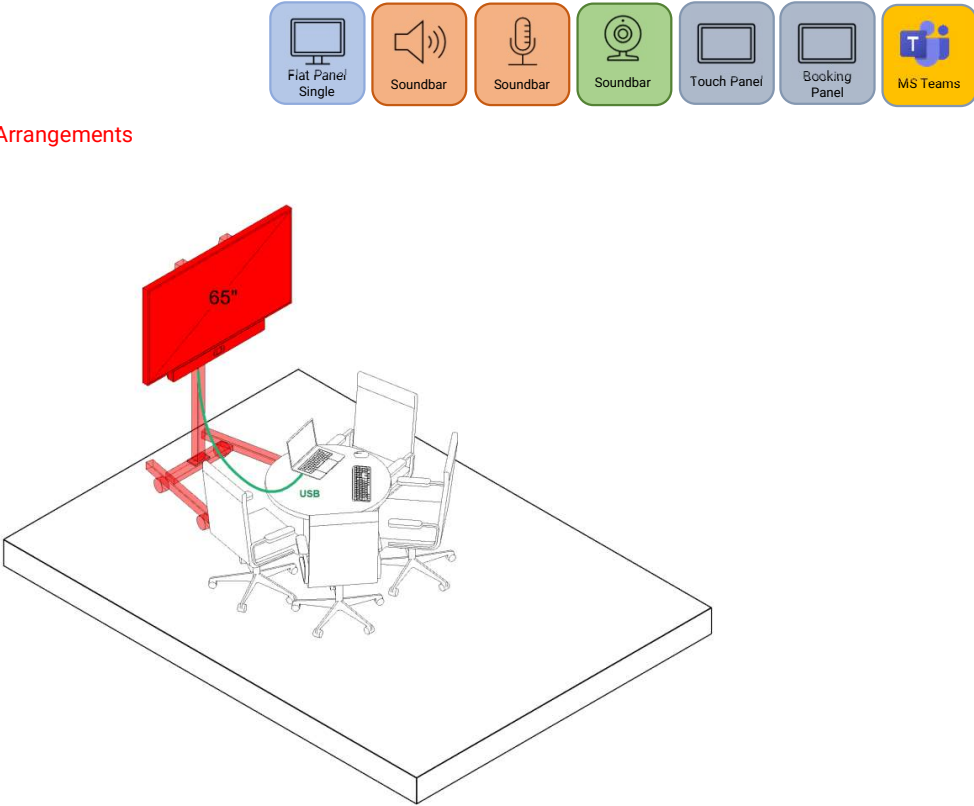
OCH_01_065C_01

General Description

The AV solution consists of a display, microphone and speaker combination sound bar with integrated webcam. Connected to a computer at the rear of the display with a wireless keyboard and mouse. Mounted to a mobile trolley so it can be easily moved. The computer operates in a similar fashion to a laptop, users can logon with their LTU account and operate the computer with UC Engine software installed on the computer. The displays automatically power down after a timeout period. The mobile trolley also has electric height adjustments to suit different environments.

ROOM SPECIFICATION	General Room Type	Small Meeting
	Seating Capacity	4-6
	Area in m2	8-10
	Custom Configuration Available	No
DISPLAY	Main Display	Single Flat Panel
	Additional Displays	No
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	65 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	AIO Soundbar
	Conferencing Microphones	Integrated to Soundbar
	Voicelift	No
	Wireless Microphones	No
	Hearing Augmentation	No
CAMERA	Conferencing Camera	Integrated to Soundbar
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Touch Panel on Table
	Remote Monitoring	N/A
	Motion Sensor	Optional
	Room Booking Panel	Optional
ADD ONS	Document Camera	No.
	Echo360 Recording	No

Room Arrangements



Collaboration

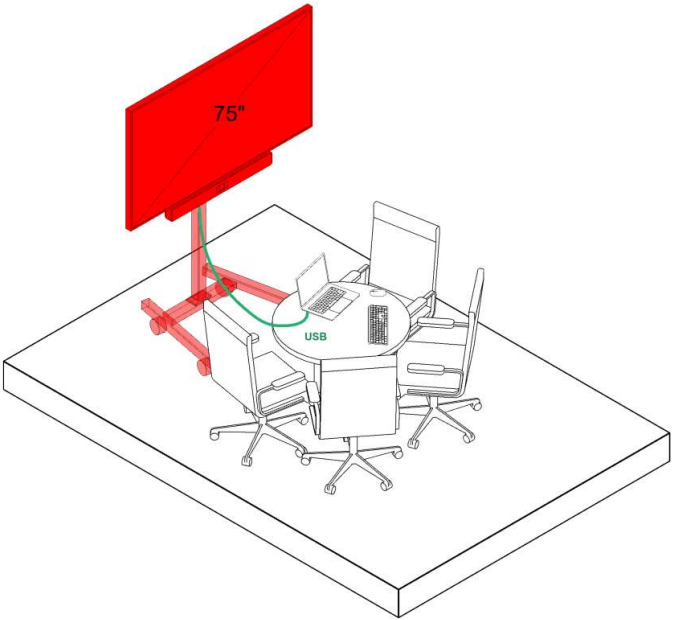
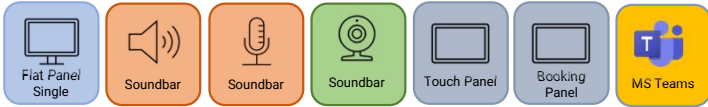
OCH_01_075C_01

General Description

The AV solution consists of a display, microphone and speaker combination sound bar with integrated webcam. Connected to a computer at the rear of the display with a wireless keyboard and mouse. Mounted to a mobile trolley so it can be easily moved. The computer operates in a similar fashion to a laptop, users can logon with their LTU account and operate the computer with UC Engine software installed on the computer. The displays automatically power down after a timeout period. The mobile trolley also has electric height adjustments to suit different environments.

ROOM SPECIFICATION	General Room Type	Small Meeting
	Seating Capacity	4-6
	Area in m2	8-10
	Custom Configuration Available	No
DISPLAY	Main Display	Single Flat Panel
	Additional Displays	No
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	75 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	AIO Soundbar
	Conferencing Microphones	Integrated to Soundbar
	Voicelift	No
	Wireless Microphones	No
	Hearing Augmentation	No
CAMERA	Conferencing Camera	Integrated to Soundbar
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Touch Panel on Table
	Remote Monitoring	N/A
	Motion Sensor	Optional
	Room Booking Panel	Optional
ADD ONS	Document Camera	No.
	Echo360 Recording	No

Room Arrangements



Collaboration

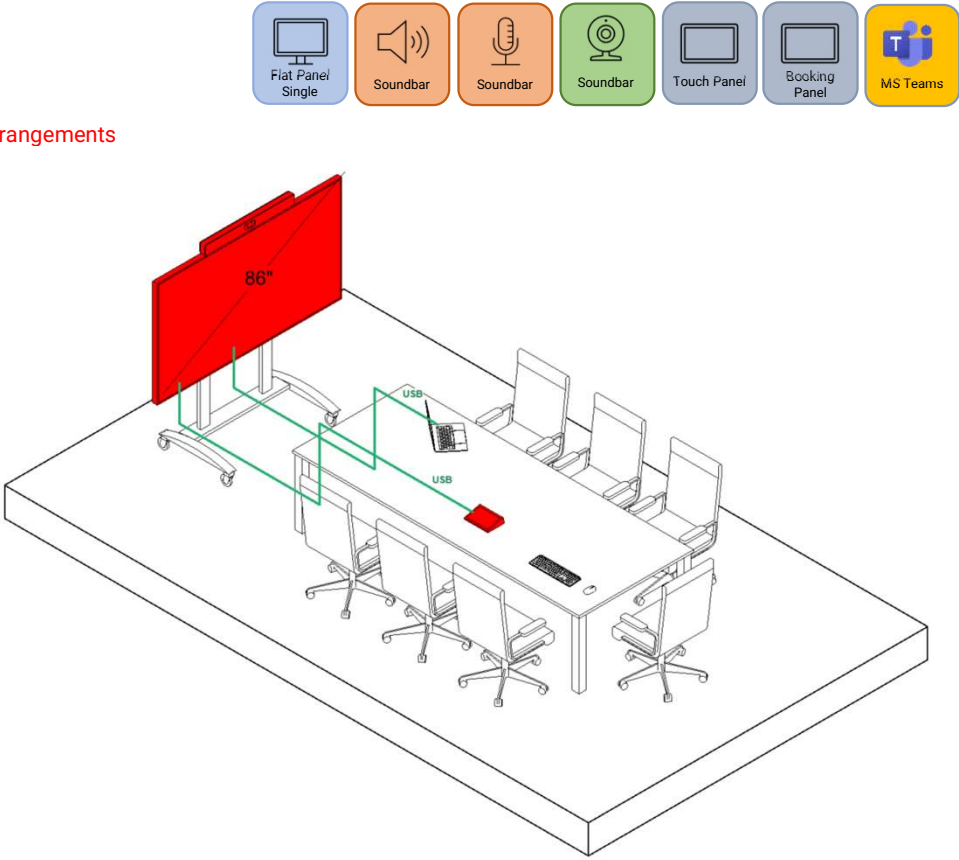
OCH_01_086C_01

General Description

The AV solution consists of a display, microphone and speaker combination sound bar with integrated webcam. Connected to a computer at the rear of the display with a wireless keyboard and mouse. Mounted to a mobile trolley so it can be easily moved. The computer operates in a similar fashion to a laptop, users can logon with their LTU account and operate the computer with UC Engine software installed on the computer. The displays automatically power down after a timeout period. The mobile trolley also has electric height adjustments to suit different environments.

ROOM SPECIFICATION	General Room Type	Medium Meeting
	Seating Capacity	7-12
	Area in m2	12-18
	Custom Configuration Available	No
DISPLAY	Main Display	Single Flat Panel
	Additional Displays	No
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	86 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	AIO Soundbar
	Conferencing Microphones	Integrated to Soundbar
	Voicelift	No
	Wireless Microphones	No
	Hearing Augmentation	No
CAMERA	Conferencing Camera	Integrated to Soundbar
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Touch Panel on Table
	Remote Monitoring	N/A
	Motion Sensor	Optional
	Room Booking Panel	Optional
ADD ONS	Document Camera	No.
	Echo360 Recording	No

Room Arrangements



Estimated Cost (per room)
Will be provided upon the RFP process completion.

Collaboration

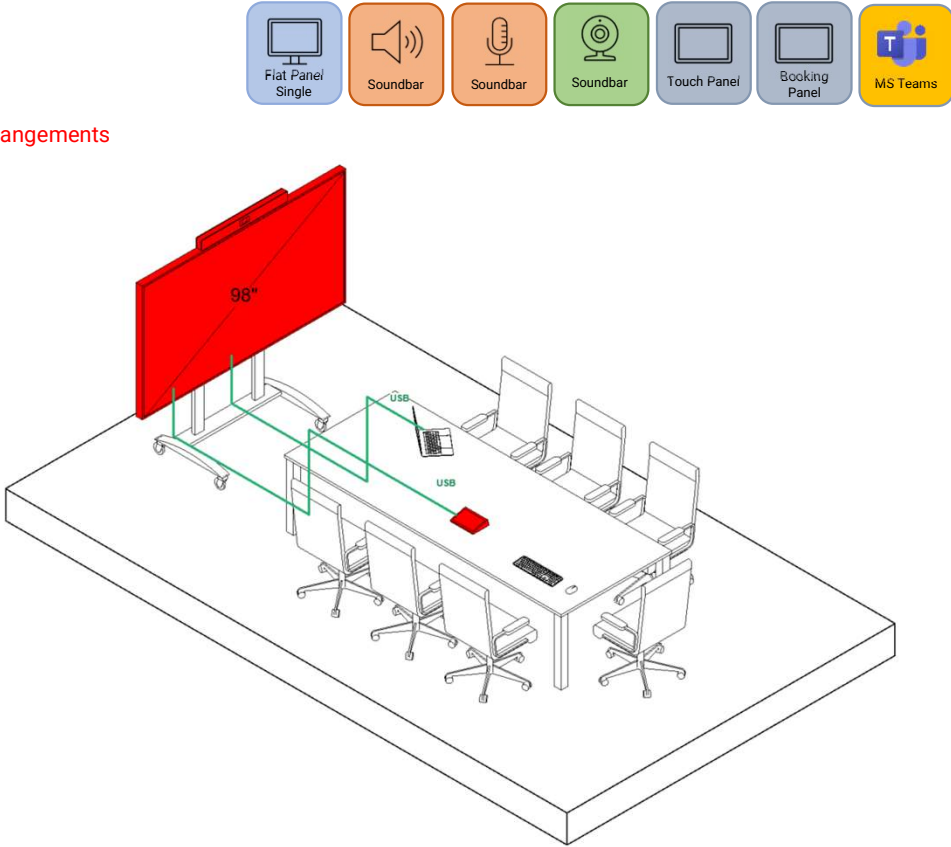
OCH_01_098C_01

General Description

The AV solution consists of a display, microphone and speaker combination sound bar with integrated webcam. Connected to a computer at the rear of the display with a wireless keyboard and mouse. Mounted to a mobile trolley so it can be easily moved. The computer operates in a similar fashion to a laptop, users can logon with their LTU account and operate the computer with UC Engine software installed on the computer. The displays automatically power down after a timeout period. The mobile trolley also has electric height adjustments to suit different environments.

ROOM SPECIFICATION	General Room Type	Medium Meeting
	Seating Capacity	7-12
	Area in m2	12-18
	Custom Configuration Available	No
DISPLAY	Main Display	Single Flat Panel
	Additional Displays	No
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	98 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	AIO Soundbar
	Conferencing Microphones	Integrated to Soundbar
	Voicelift	No
	Wireless Microphones	No
	Hearing Augmentation	No
CAMERA	Conferencing Camera	Integrated to Soundbar
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Touch Panel on Table
	Remote Monitoring	N/A
	Motion Sensor	Optional
	Room Booking Panel	Optional
ADD ONS	Document Camera	No.
	Echo360 Recording	No

Room Arrangements



Collaboration

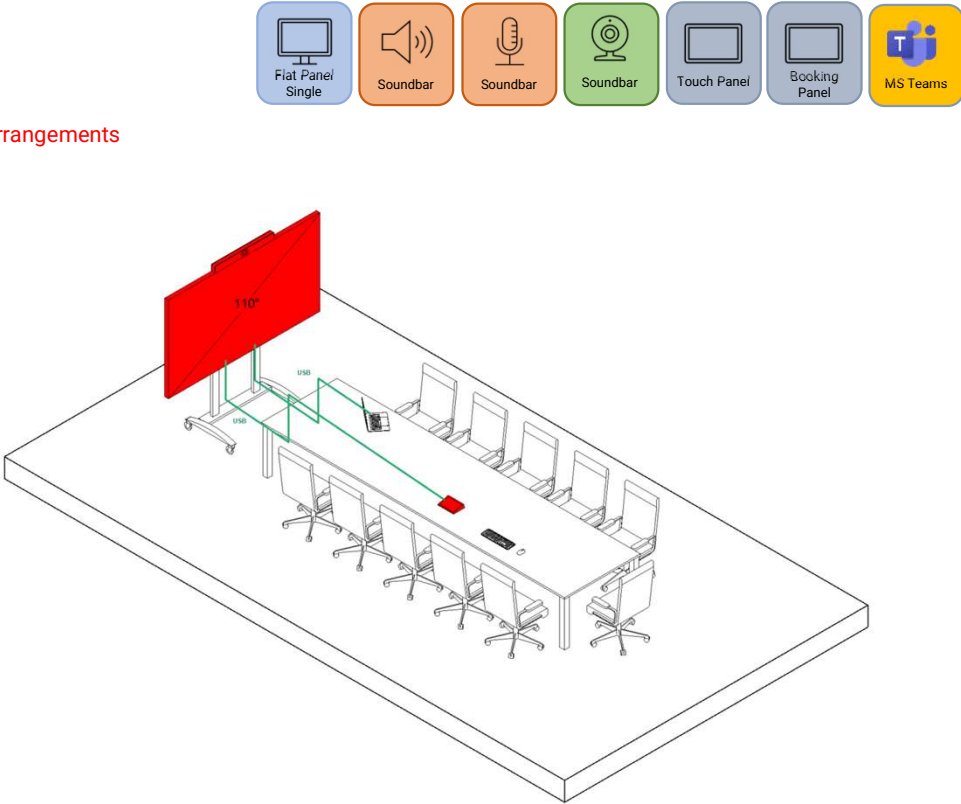
OCH_01_110C_01

General Description

The AV solution consists of a display, microphone and speaker combination sound bar with integrated webcam. Connected to a computer at the rear of the display with a wireless keyboard and mouse. Mounted to a mobile trolley so it can be easily moved. The computer operates in a similar fashion to a laptop, users can logon with their LTU account and operate the computer with UC Engine software installed on the computer. The displays automatically power down after a timeout period. The mobile trolley also has electric height adjustments to suit different environments.

ROOM SPECIFICATION	General Room Type	Medium Meeting
	Seating Capacity	7-12
	Area in m2	12-18
	Custom Configuration Available	No
DISPLAY	Main Display	Single Flat Panel
	Additional Displays	No
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	110 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	AIO Soundbar
	Conferencing Microphones	Integrated to Soundbar
	Voicelift	No
	Wireless Microphones	No
	Hearing Augmentation	No
CAMERA	Conferencing Camera	Integrated to Soundbar
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Touch Panel on Table
	Remote Monitoring	N/A
	Motion Sensor	Optional
	Room Booking Panel	Optional
ADD ONS	Document Camera	No.
	Echo360 Recording	No

Room Arrangements



AV Design Guidelines

Small Meeting Rooms

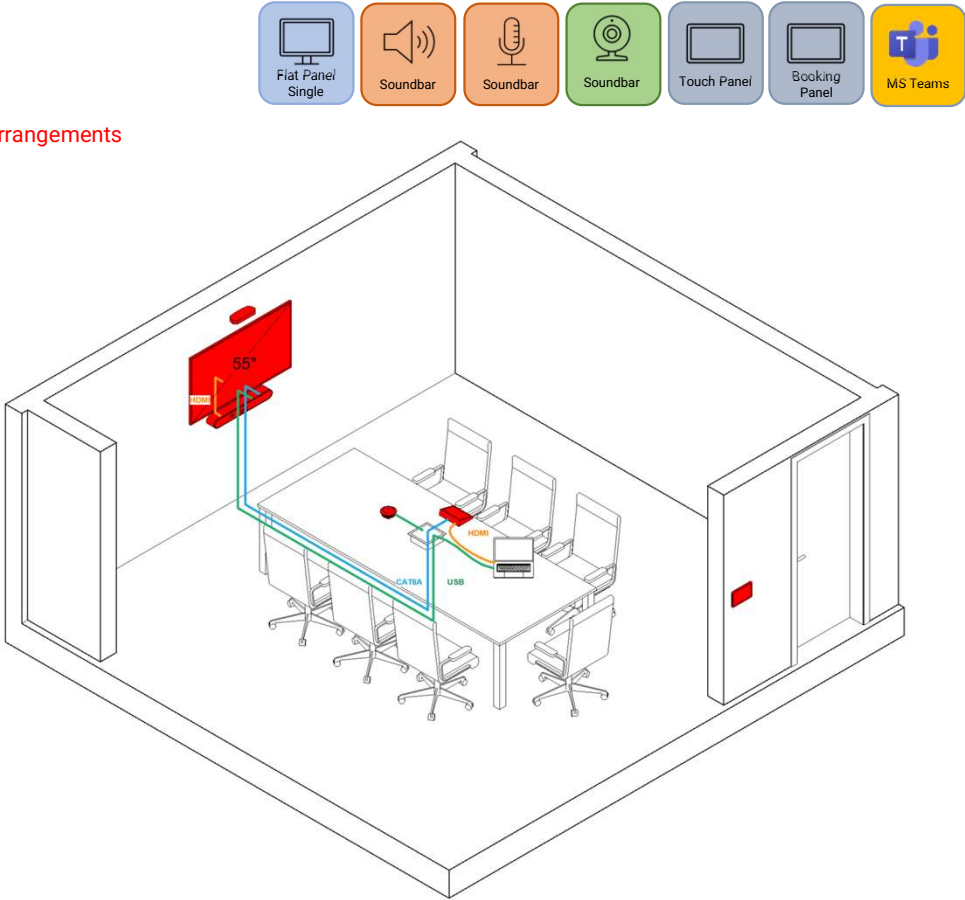
Small Meeting Room SML_01_055U_01

General Description

The AV solution consists of a single display with a microphone and speaker combination sound bar with integrated webcam. On the desk is a touch pad controller. A HDMI cable recessed in a box embedded in the table for content sharing. Additionally, a USBC cable is provided for BYOD mode, BYOD mode allows for the use of a laptop and any software to control the soundbar (speakers, microphones, webcam). The AV solution is mounted to the wall. A single 240v power outlet to be provided for every six people supplied at the desk to allow for devices to remain charged during the meeting. The display automatically powers on when detecting the touch screen controller has been activated or a device has been plugged into HDMI. The displays automatically power down after a timeout period. A room scheduling panel is located at the entrance.

ROOM SPECIFICATION	General Room Type	Small Meeting
	Seating Capacity	4-8
	Area in m2	14-20
	Custom Configuration Available	No
DISPLAY	Main Display	Single Flat Panel
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	55 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	AIO Soundbar
	Conferencing Microphones	Integrated to Soundbar
	Voice lift	No
	Wireless Microphones	No
	Hearing Augmentation	IR Transmitter / Receivers
CAMERA	Conferencing Camera	Integrated to Soundbar
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Touch Panel on Table
	Room Booking Panel	Yes
	BYOD Conferencing	USB-A/C
	Remote Monitoring	N/A
	Motion Sensor	Crestron PIR CEN-ODT-C-POE
	Room Booking Panel	Crestron TSS-1070-B-S-LB kit
POWER	Floor box 240v Power	Yes
	Table mounted 240v + USB Chargers	Yes

Room Arrangements



Small Meeting Room

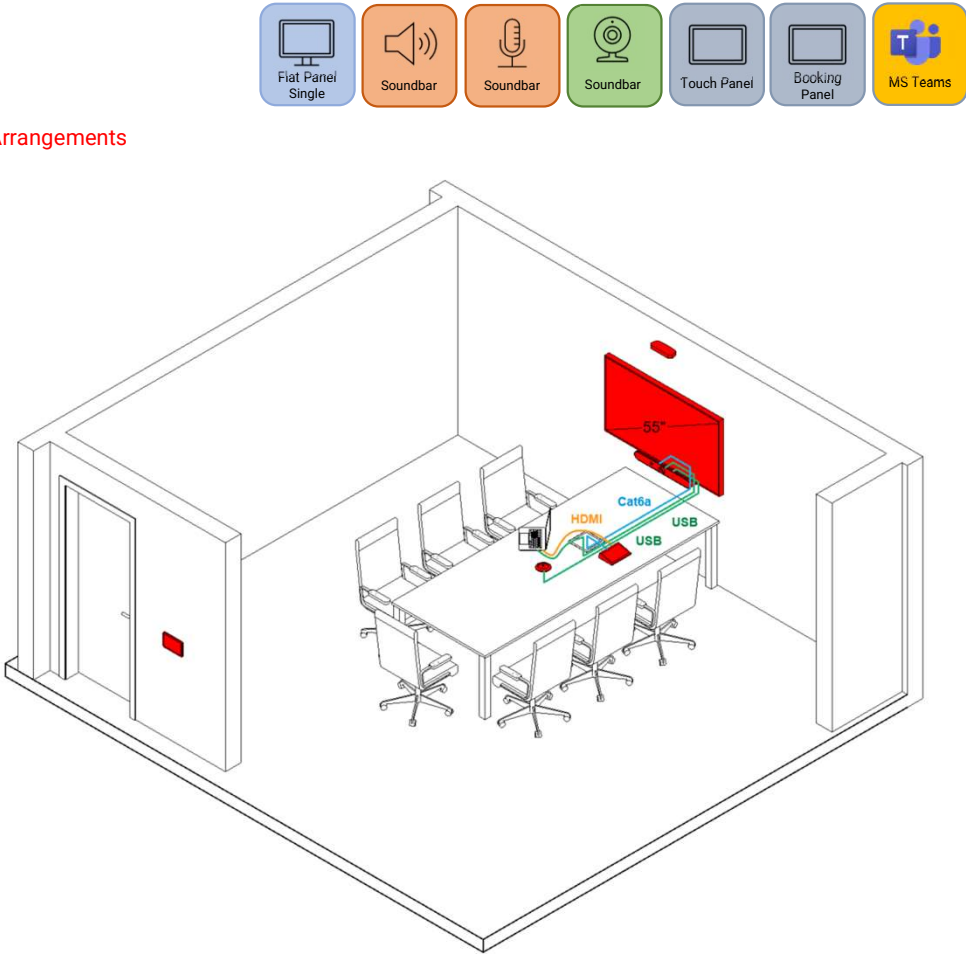
SML_01_055U_02

General Description

The AV solution consists of a single display with a microphone and speaker combination sound bar with integrated webcam. On the desk is a touch pad controller. A HDMI cable recessed in a box embedded in the table for content sharing. Additionally, a USBC cable is provided for BYOD mode, BYOD mode allows for the use of a laptop and any software to control the soundbar (speakers, microphones, webcam). The AV solution is mounted to the wall. A single 240v power outlet to be provided for every six people supplied at the desk to allow for devices to remain charged during the meeting. The display automatically powers on when detecting the touch screen controller has been activated or a device has been plugged into HDMI. The displays automatically power down after a timeout period. A room scheduling panel is located at the entrance.

ROOM SPECIFICATION	General Room Type	Small Meeting
	Seating Capacity	4-8
	Area in m2	14-20
	Custom Configuration Available	No
DISPLAY	Main Display	Single Flat Panel
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	55 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	AIO Soundbar
	Conferencing Microphones	Integrated to Soundbar
	Voicelift	No
	Wireless Microphones	No
	Hearing Augmentation	IR Transmitter / Receivers
CAMERA	Conferencing Camera	Integrated to Soundbar
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Touch Panel on Table
	Room Booking Panel	Yes
	BYOD Conferencing	USB-C
	Remote Monitoring	N/A
	Motion Sensor	Crestron PIR CEN-ODT-C-POE
	Room Booking Panel	Crestron TSS-1070-B-S-LB kit
POWER	Floor box 240v Power	Yes
	Table mounted 240v + USB Chargers	Yes

Room Arrangements



Small Meeting Room

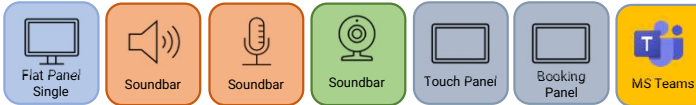
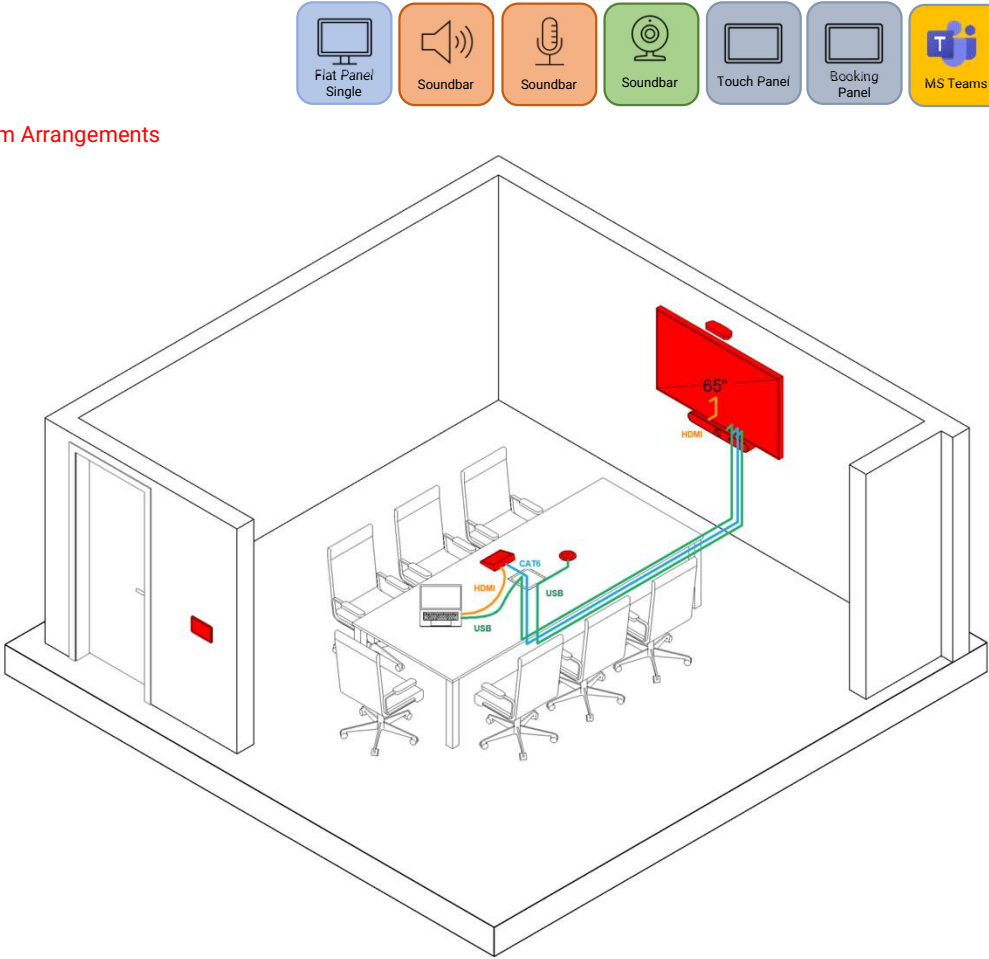
SML_01_065U_01

General Description

The AV solution consists of a single display with a microphone and speaker combination sound bar with integrated webcam. On the desk is a touch pad controller. A HDMI cable recessed in a box embedded in the table for content sharing. Additionally, a USBC cable is provided for BYOD mode, BYOD mode allows for the use of a laptop and any software to control the soundbar (speakers, microphones, webcam). The AV solution is mounted to the wall. A single 240v power outlet to be provided for every six people supplied at the desk to allow for devices to remain charged during the meeting. The display automatically powers on when detecting the touch screen controller has been activated or a device has been plugged into HDMI. The displays automatically power down after a timeout period. A room scheduling panel is located at the entrance.

ROOM SPECIFICATION	General Room Type	Small Meeting
	Seating Capacity	4-8
	Area in m2	14-20
	Custom Configuration Available	No
DISPLAY	Main Display	Single Flat Panel
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	65 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	AIO Soundbar
	Conferencing Microphones	Integrated to Soundbar
	Voice lift	No
	Wireless Microphones	No
	Hearing Augmentation	IR Transmitter / Receivers
CAMERA	Conferencing Camera	Integrated to Soundbar
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Touch Panel on Table
	Room Booking Panel	Yes
	BYOD Conferencing	USB-A/C
	Remote Monitoring	N/A
	Motion Sensor	Crestron PIR CEN-ODT-C-POE
	Room Booking Panel	Crestron TSS-1070-B-S-LB kit
POWER	Floor box 240v Power	Yes
	Table mounted 240v + USB Chargers	Yes

Room Arrangements



Small Meeting Room

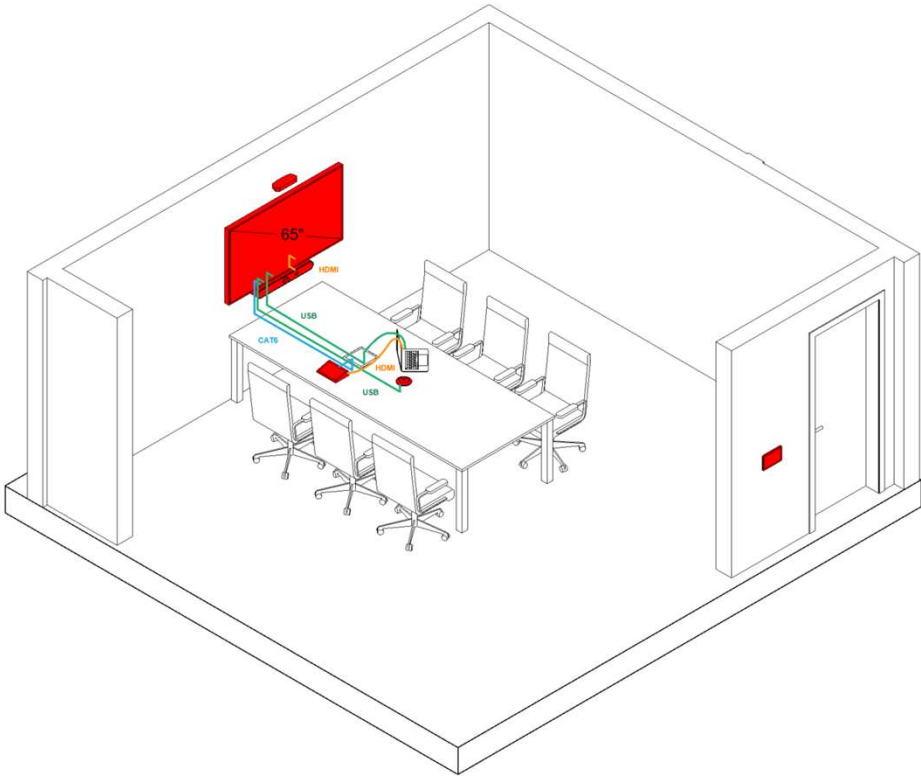
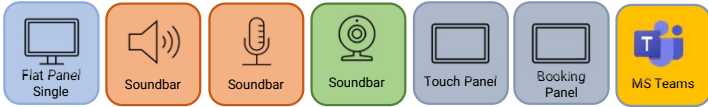
SML_01_065U_02

General Description

The AV solution consists of a single display with a microphone and speaker combination sound bar with integrated webcam. On the desk is a touch pad controller. A HDMI cable recessed in a box embedded in the table for content sharing. Additionally, a USBC cable is provided for BYOD mode, BYOD mode allows for the use of a laptop and any software to control the soundbar (speakers, microphones, webcam). The AV solution is mounted to the wall. A single 240v power outlet to be provided for every six people supplied at the desk to allow for devices to remain charged during the meeting. The display automatically powers on when detecting the touch screen controller has been activated or a device has been plugged into HDMI. The displays automatically power down after a timeout period. A room scheduling panel is located at the entrance.

ROOM SPECIFICATION	General Room Type	Small Meeting
	Seating Capacity	4-8
	Area in m2	14-20
	Custom Configuration Available	No
DISPLAY	Main Display	Single Flat Panel
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	65 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	AIO Soundbar
	Conferencing Microphones	Integrated to Soundbar
	Voice lift	No
	Wireless Microphones	No
	Hearing Augmentation	IR Transmitter / Receivers
CAMERA	Conferencing Camera	Integrated to Soundbar
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Touch Panel on Table
	Room Booking Panel	Yes
	BYOD Conferencing	USB-A/C
	Remote Monitoring	N/A
	Motion Sensor	Crestron PIR CEN-ODT-C-POE
	Room Booking Panel	Crestron TSS-1070-B-S-LB kit
POWER	Floor box 240v Power	Yes
	Table mounted 240v + USB Chargers	Yes

Room Arrangements



Small Meeting Room

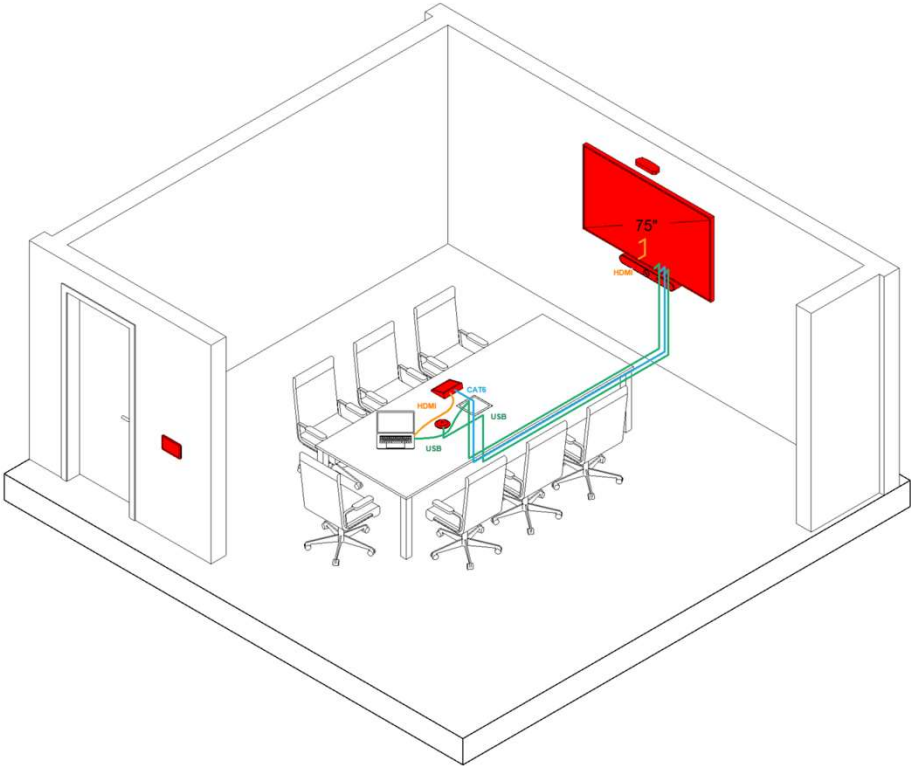
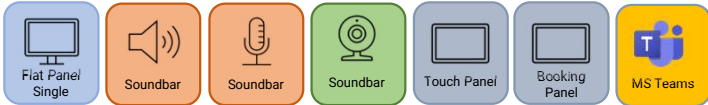
SML_01_075U_01

General Description

The AV solution consists of a single display with a microphone and speaker combination sound bar with integrated webcam. On the desk is a touch pad controller. A HDMI cable recessed in a box embedded in the table for content sharing. Additionally, a USBC cable is provided for BYOD mode, BYOD mode allows for the use of a laptop and any software to control the soundbar (speakers, microphones, webcam). The AV solution is mounted to the wall. A single 240v power outlet to be provided for every six people supplied at the desk to allow for devices to remain charged during the meeting. The display automatically powers on when detecting the touch screen controller has been activated or a device has been plugged into HDMI. The displays automatically power down after a timeout period. A room scheduling panel is located at the entrance.

ROOM SPECIFICATION	General Room Type	Small Meeting
	Seating Capacity	4-8
	Area in m2	14-20
	Custom Configuration Available	No
DISPLAY	Main Display	Single Flat Panel
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	75 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	AIO Soundbar
	Conferencing Microphones	Integrated to Soundbar
	Voice lift	No
	Wireless Microphones	No
	Hearing Augmentation	IR Transmitter / Receivers
CAMERA	Conferencing Camera	Integrated to Soundbar
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Touch Panel on Table
	Room Booking Panel	Yes
	BYOD Conferencing	USB-A/C
	Remote Monitoring	N/A
	Motion Sensor	Crestron PIR CEN-ODT-C-POE
	Room Booking Panel	Crestron TSS-1070-B-S-LB kit
POWER	Floor box 240v Power	Yes
	Table mounted 240v + USB Chargers	Yes

Room Arrangements



Small Meeting Room

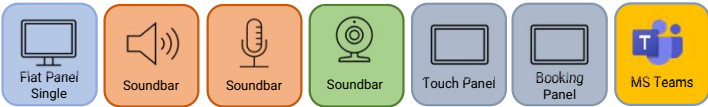
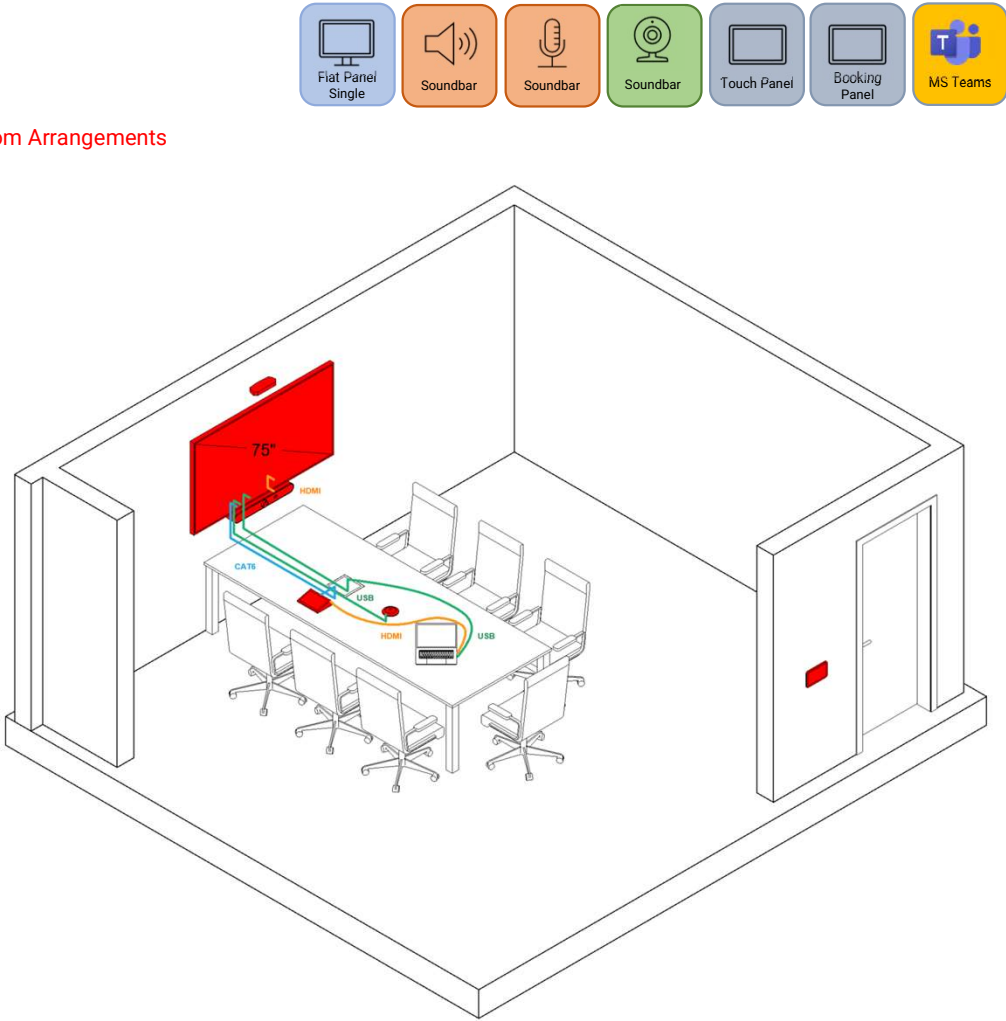
SML_01_075U_02

General Description

The AV solution consists of a single display with a microphone and speaker combination sound bar with integrated webcam. On the desk is a touch pad controller. A HDMI cable recessed in a box embedded in the table for content sharing. Additionally, a USBC cable is provided for BYOD mode, BYOD mode allows for the use of a laptop and any software to control the soundbar (speakers, microphones, webcam). The AV solution is mounted to the wall. A single 240v power outlet to be provided for every six people supplied at the desk to allow for devices to remain charged during the meeting. The display automatically powers on when detecting the touch screen controller has been activated or a device has been plugged into HDMI. The displays automatically power down after a timeout period. A room scheduling panel is located at the entrance.

ROOM SPECIFICATION	General Room Type	Small Meeting
	Seating Capacity	4-8
	Area in m2	14-20
	Custom Configuration Available	No
DISPLAY	Main Display	Single Flat Panel
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	75 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	AIO Soundbar
	Conferencing Microphones	Integrated to Soundbar
	Voicelift	No
	Wireless Microphones	No
	Hearing Augmentation	IR Transmitter / Receivers
CAMERA	Conferencing Camera	Integrated to Soundbar
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Touch Panel on Table
	Room Booking Panel	Yes
	BYOD Conferencing	USB-C
	Remote Monitoring	N/A
	Motion Sensor	Crestron PIR CEN-ODT-C-POE
	Room Booking Panel	Crestron TSS-1070-B-S-LB kit
POWER	Floor box 240v Power	Yes
	Table mounted 240v + USB Chargers	Yes

Room Arrangements



Small Meeting Room

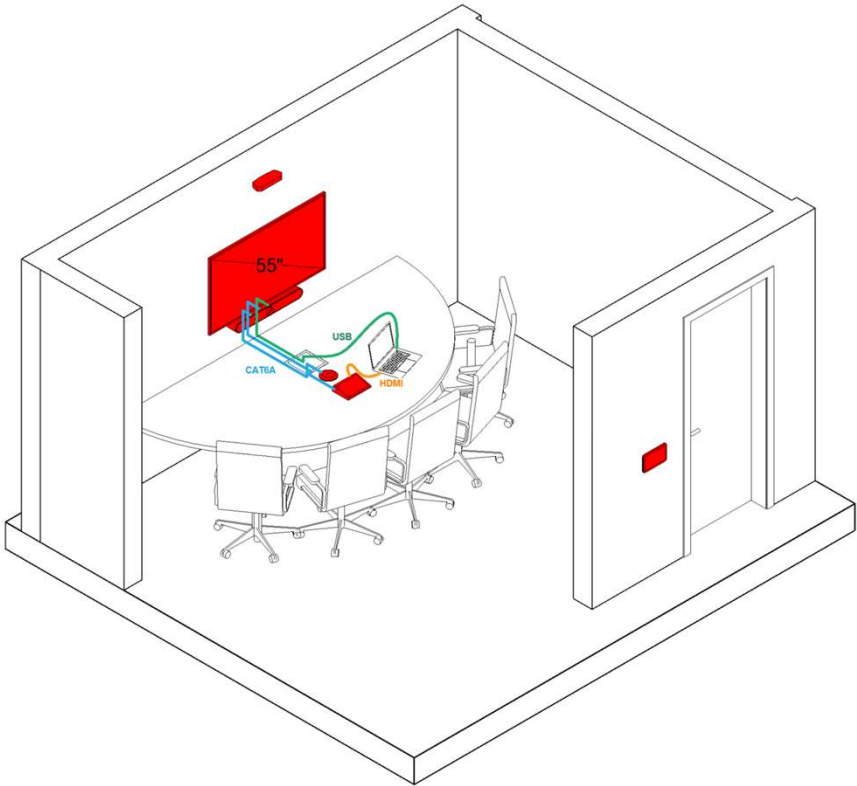
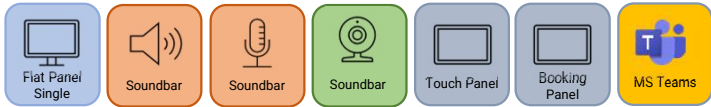
SML_01_055U_04

General Description

The AV solution consists of a single display with a microphone and speaker combination sound bar with integrated webcam. On the desk is a touch pad controller. A HDMI cable available at the table for content sharing. Additionally, a USB/A/C cable is provided for BYOD mode, BYOD mode allows for the use of a laptop and any software to control the soundbar (speakers, microphones, webcam). The AV solution is mounted to the wall. A single 240v power outlet to be provided for every six people supplied at the desk to allow for devices to remain charged during the meeting. The display automatically powers on when detecting the touch screen controller has been activated or a device has been plugged into HDMI. The displays automatically power down after a timeout period. A room scheduling panel is located at the entrance.

ROOM SPECIFICATION	General Room Type	Small Meeting
	Seating Capacity	4-8
	Area in m2	9-16
	Custom Configuration Available	No
DISPLAY	Main Display	Single Flat Panel
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	55 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	AIO Soundbar
	Conferencing Microphones	Integrated to Soundbar
	Voicelift	No
	Wireless Microphones	No
	Hearing Augmentation	IR Transmitter / Receivers
CAMERA	Conferencing Camera	Integrated to Soundbar
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Touch Panel on Table
	Room Booking Panel	Yes
	BYOD Conferencing	USB-A/C
	Remote Monitoring	N/A
	Motion Sensor	Crestron PIR CEN-ODT-C-POE
	Room Booking Panel	Crestron TSS-1070-B-S-LB kit
POWER	Floor box 240v Power	Yes
	Table mounted 240v + USB Chargers	Yes

Room Arrangements



Small Meeting Room

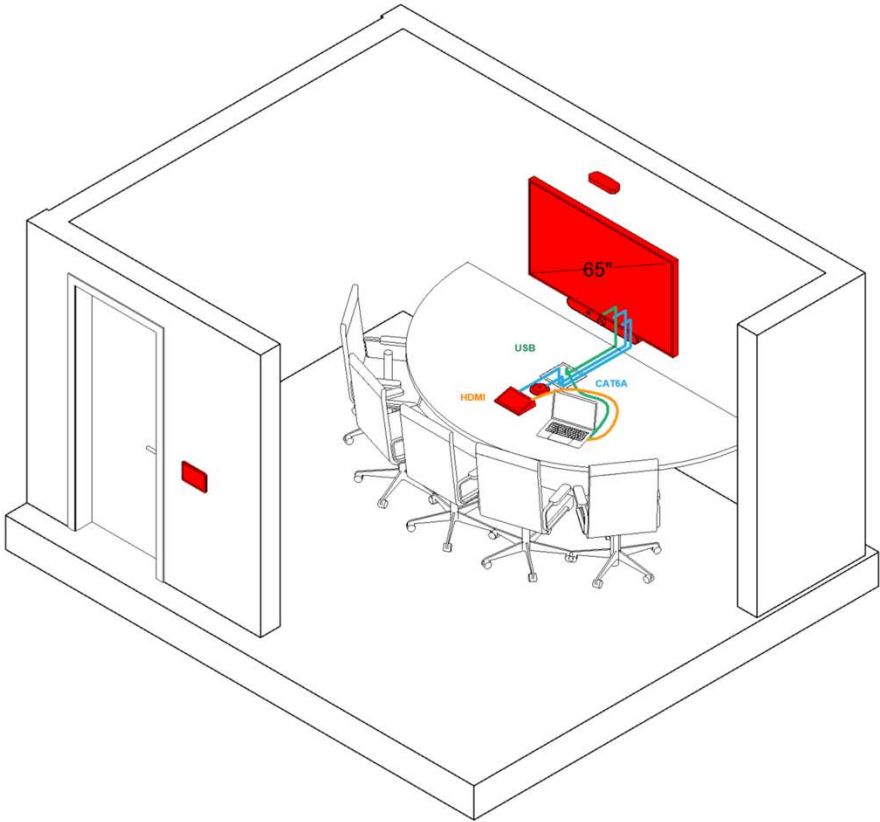
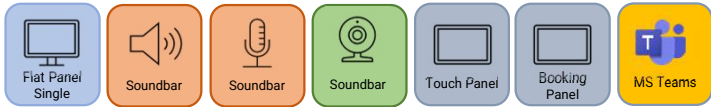
SML_01_065U_04

General Description

The AV solution consists of a single display with a microphone and speaker combination sound bar with integrated webcam. On the desk is a touch pad controller. A HDMI cable available at the table for content sharing. Additionally, a USB-A/C cable is provided for BYOD mode, BYOD mode allows for the use of a laptop and any software to control the soundbar (speakers, microphones, webcam). The AV solution is mounted to the wall. A single 240v power outlet to be provided for every six people supplied at the desk to allow for devices to remain charged during the meeting. The display automatically powers on when detecting the touch screen controller has been activated or a device has been plugged into HDMI. The displays automatically power down after a timeout period. A room scheduling panel is located at the entrance.

ROOM SPECIFICATION	General Room Type	Small Meeting
	Seating Capacity	4-8
	Area in m2	9-16
	Custom Configuration Available	No
DISPLAY	Main Display	Single Flat Panel
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	65 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	AIO Soundbar
	Conferencing Microphones	Integrated to Soundbar
	Voicelift	No
	Wireless Microphones	No
	Hearing Augmentation	IR Transmitter / Receivers
CAMERA	Conferencing Camera	Integrated to Soundbar
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Touch Panel on Table
	Room Booking Panel	Yes
	BYOD Conferencing	USB-A/C
	Remote Monitoring	N/A
	Motion Sensor	Crestron PIR CEN-ODT-C-POE
	Room Booking Panel	Crestron TSS-1070-B-S-LB kit
POWER	Floor box 240v Power	Yes
	Table mounted 240v + USB Chargers	Yes

Room Arrangements



AV Design Guidelines

Medium Meeting Rooms

Medium Meeting Room

MED_01_075U_01

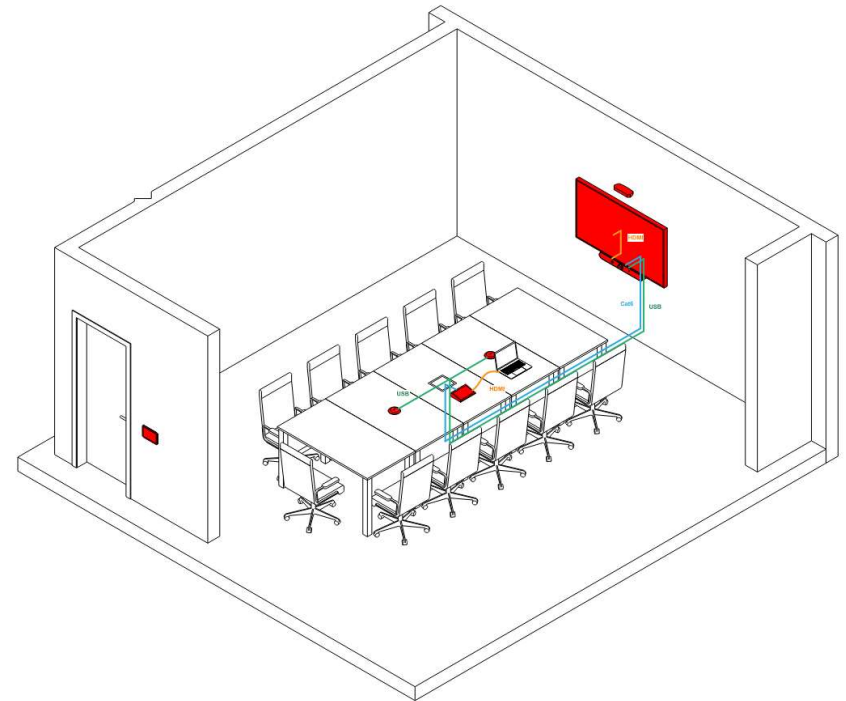
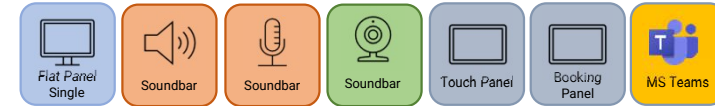
General Description

The AV solution consists of a single display with a microphone and speaker combination sound bar with integrated webcam. On the desk is a touch pad controller. A HDMI cable is recessed in a box embedded in the table for content sharing.

Additionally, a USBC cable is provided for BYOD mode, BYOD mode allows for the use of a laptop and any software to control the soundbar (speakers, microphones, webcam). The AV solution is mounted to the wall. A single 240v power outlet to be provided for every six people supplied at the desk to allow for devices to remain charged during the meeting. The display automatically powers on when detecting the touch screen controller has been activated or a device has been plugged into HDMI. The displays automatically power down after a timeout period. A room scheduling panel is located at the entrance.

ROOM SPECIFICATION	General Room Type	Medium Meeting
	Seating Capacity	10-12
	Area in m2	20-30
	Custom Configuration Available	No
DISPLAY	Main Display	Single Flat Panel
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	75 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	AIO Soundbar
	Conferencing Microphones	Integrated to Soundbar Tabletop Microphones
	Voicelift	No
	Wireless Microphones	No
	Hearing Augmentation	IR Transmitter / Receivers
CAMERA	Conferencing Camera	Integrated to Soundbar
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Touch Panel on Table
	Remote Monitoring	N/A
	Motion Sensor	Crestron PIR CEN-ODT-C-POE
	BYOD Conferencing	USB-A/C
	Room Booking Panel	Crestron TSS-1070-B-S-LB kit
ADD ONS	Document Camera	No.
	Echo360 Recording	No
POWER	Floor box 240v Power	Yes
	Table mounted 240v + USB Chargers	Yes

Room Arrangements



Medium Meeting Room

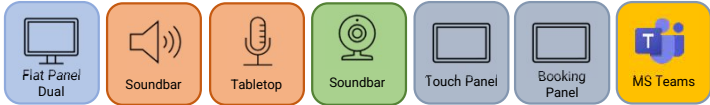
MED_02_075U_01

General Description

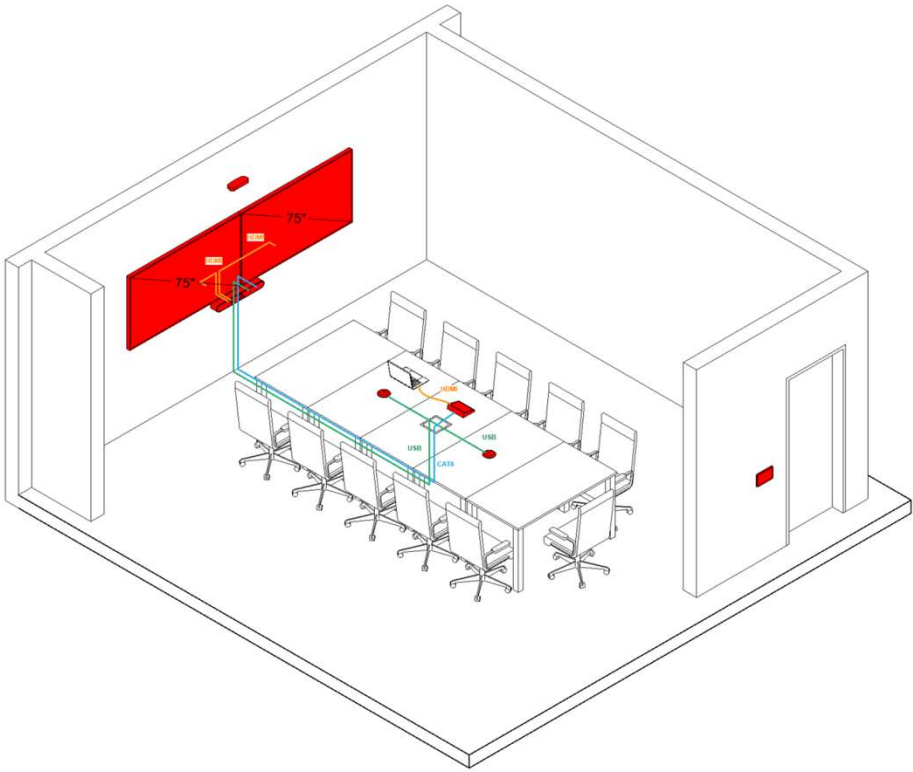
The AV solution consists of a dual display with a microphone and speaker combination sound bar with integrated webcam. On the desk are additional microphones ensuring everyone can be heard clearly, as well as a touch pad controller that includes a HDMI cable for content sharing. Additionally, a USBC cable is provided for BYOD mode. BYOD mode allows for the use of a laptop and any software to control the soundbar (speakers, microphones, webcam). The AV solution is mounted to the wall. A 240v power outlet to be provided for every six people supplied at the desk to allow for devices to remain charged during the meeting. The display automatically powers on when detecting the touch screen controller has been activated or a device has been plugged into HDMI. The displays automatically power down after a timeout period.

ROOM SPECIFICATION	General Room Type	Medium Meeting
	Seating Capacity	10-12
	Area in m2	20-30
	Custom Configuration Available	No
DISPLAY	Main Display	Dual Flat Panel
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	75 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	AIO Soundbar
	Conferencing Microphones	Integrated to Soundbar Tabletop Microphones
	Voicelift	No
	Wireless Microphones	No
	Hearing Augmentation	IR Transmitters / Receivers
CAMERA	Conferencing Camera	Integrated to Soundbar
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Touch Panel on Table
	Remote Monitoring	N/A
	Motion Sensor	Crestron PIR CEN-ODT-C-POE
	BYOD Conferencing	USB-A/C
	Room Booking Panel	Crestron TSS-1070-B-S-LB kit
ADD ONS	Document Camera	No.
	Echo360 Recording	No
POWER	Floor box 240v Power	Yes
	Table mounted 240v + USB Chargers	Yes

Estimated Cost (per room)
Will be provided upon the RFP process completion.



Room Arrangements



Medium Meeting Room

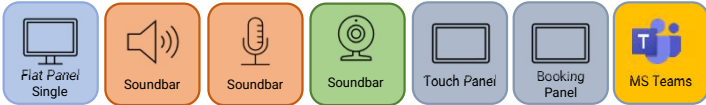
MED_01_086U_01

General Description

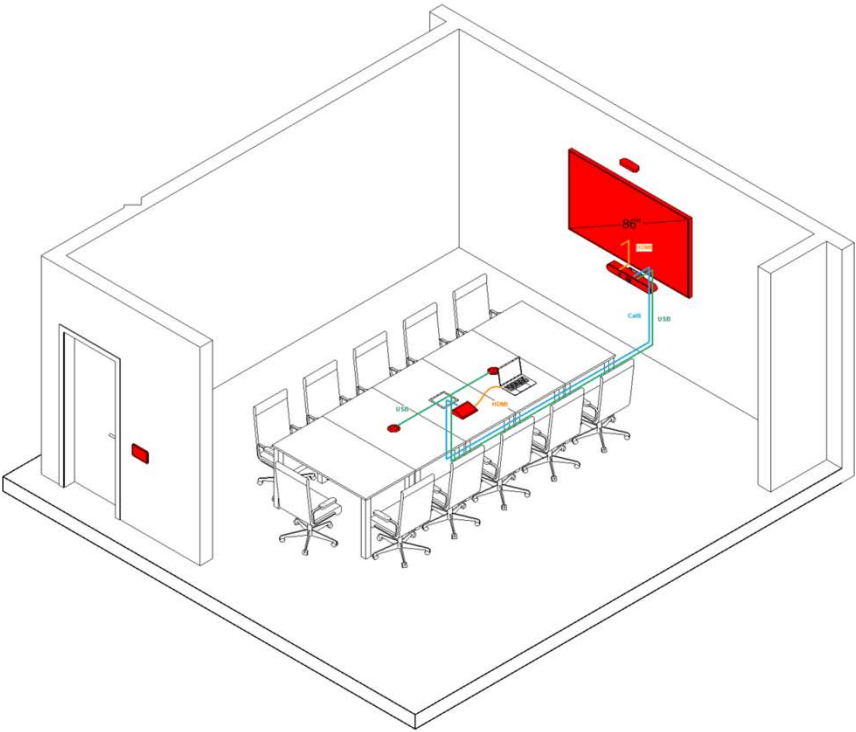
The AV solution consists of a single display with a microphone and speaker combination sound bar with integrated webcam. On the desk is a touch pad controller. A HDMI cable recessed in a box embedded in the table for content sharing. Additionally, a USBC cable is provided for BYOD mode, BYOD mode allows for the use of a laptop and any software to control the soundbar (speakers, microphones, webcam). The AV solution is mounted to the wall. A single 240v power outlet to be provided for every six people supplied at the desk to allow for devices to remain charged during the meeting. The display automatically powers on when detecting the touch screen controller has been activated or a device has been plugged into HDMI. The displays automatically power down after a timeout period. A room scheduling panel is located at the entrance.

ROOM SPECIFICATION	General Room Type	Medium Meeting
	Seating Capacity	10-12
	Area in m2	20-30
	Custom Configuration Available	No
DISPLAY	Main Display	Single Flat Panel
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	86 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	AIO Soundbar
	Conferencing Microphones	Integrated to Soundbar Tabletop Microphones
	Voicelift	No
	Wireless Microphones	No
	Hearing Augmentation	IR Transmitter / Receivers
CAMERA	Conferencing Camera	Integrated to Soundbar
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Touch Panel on Table
	Remote Monitoring	N/A
	Motion Sensor	Crestron PIR CEN-ODT-C-POE
	BYOD Conferencing	USB-A/C
	Room Booking Panel	Crestron TSS-1070-B-S-LB kit
ADD ONS	Document Camera	No.
	Echo360 Recording	No
POWER	Floor box 240v Power	Yes
	Table mounted 240v + USB Chargers	Yes

Estimated Cost (per room)
Will be provided upon the RFP process completion.



Room Arrangements



Medium Meeting Room

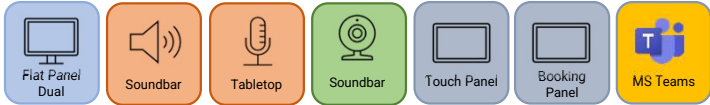
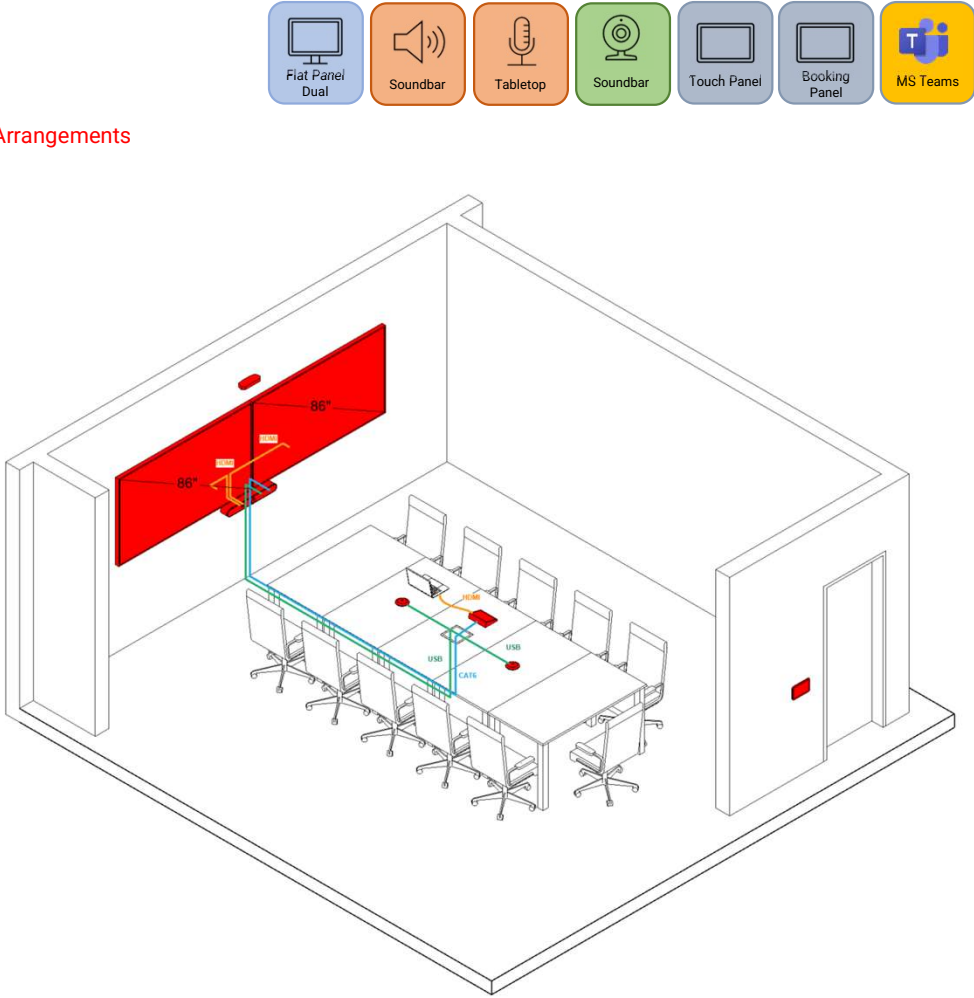
MED_02_086U_01

General Description

The AV solution consists of a dual display with a microphone and speaker combination sound bar with integrated webcam. On the desk are additional microphones ensuring everyone can be heard clearly, as well as a touch pad controller that includes a HDMI cable for content sharing. Additionally, a USBC cable is provided for BYOD mode. BYOD mode allows for the use of a laptop and any software to control the soundbar (speakers, microphones, webcam). The AV solution is mounted to the wall. A 240v power outlet to be provided for every six people supplied at the desk to allow for devices to remain charged during the meeting. The display automatically powers on when detecting the touch screen controller has been activated or a device has been plugged into HDMI. The displays automatically power down after a timeout period.

ROOM SPECIFICATION	General Room Type	Medium Meeting
	Seating Capacity	10-12
	Area in m2	20-30
	Custom Configuration Available	No
DISPLAY	Main Display	Dual Flat Panel
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	86 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	AIO Soundbar
	Conferencing Microphones	Integrated to Soundbar Tabletop Microphones
	Voicelift	No
	Wireless Microphones	No
	Hearing Augmentation	IR Transmitters / Receivers
CAMERA	Conferencing Camera	Integrated to Soundbar
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Touch Panel on Table
	Remote Monitoring	N/A
	Motion Sensor	Crestron PIR CEN-ODT-C-POE
	BYOD Conferencing	USB-A/C
	Room Booking Panel	Crestron TSS-1070-B-S-LB kit
ADD ONS	Document Camera	No.
	Echo360 Recording	No
POWER	Floor box 240v Power	Yes
	Table mounted 240v + USB Chargers	Yes

Room Arrangements



Medium Meeting Room

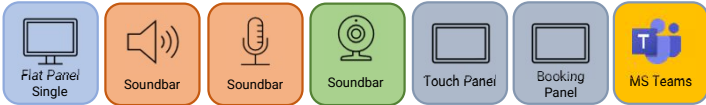
MED_01_098U_01

General Description

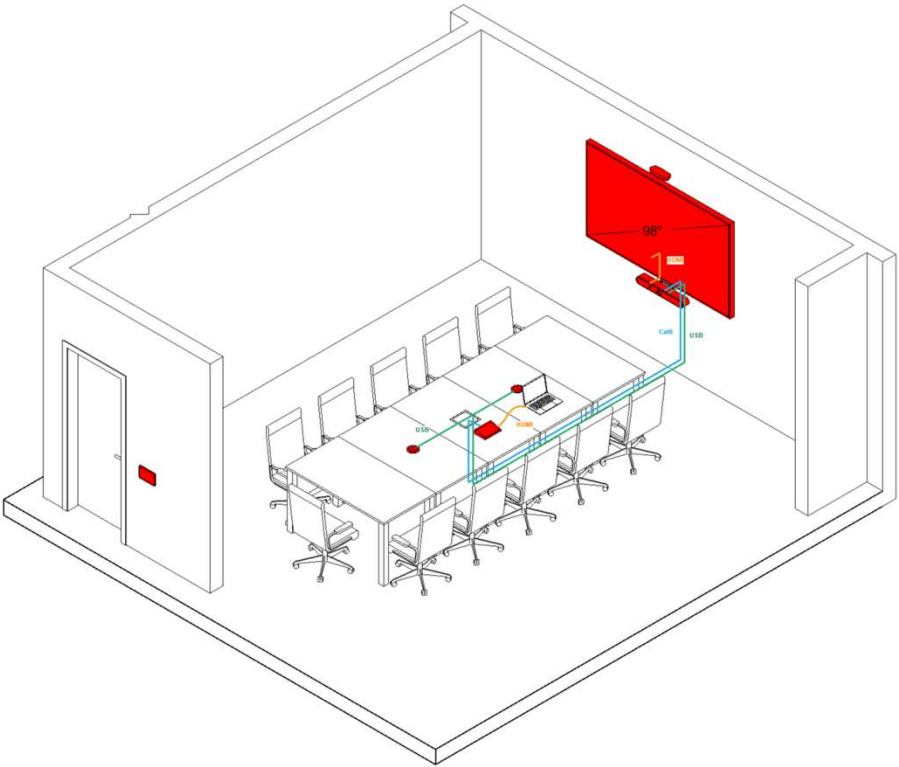
The AV solution consists of a single display with a microphone and speaker combination sound bar with integrated webcam. On the desk is a touch pad controller. A HDMI cable recessed in a box embedded in the table for content sharing. Additionally, a USBC cable is provided for BYOD mode, BYOD mode allows for the use of a laptop and any software to control the soundbar (speakers, microphones, webcam). The AV solution is mounted to the wall. A single 240v power outlet to be provided for every six people supplied at the desk to allow for devices to remain charged during the meeting. The display automatically powers on when detecting the touch screen controller has been activated or a device has been plugged into HDMI. The displays automatically power down after a timeout period. A room scheduling panel is located at the entrance.

ROOM SPECIFICATION	General Room Type	Medium Meeting
	Seating Capacity	10-12
	Area in m2	20-30
	Custom Configuration Available	No
DISPLAY	Main Display	Single Flat Panel
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	98 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	AIO Soundbar
	Conferencing Microphones	Integrated to Soundbar Tabletop Microphones
	Voicelift	No
	Wireless Microphones	No
	Hearing Augmentation	IR Transmitter / Receivers
CAMERA	Conferencing Camera	Integrated to Soundbar
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Touch Panel on Table
	Remote Monitoring	N/A
	Motion Sensor	Crestron PIR CEN-ODT-C-POE
	BYOD Conferencing	USB-A/C
	Room Booking Panel	Crestron TSS-1070-B-S-LB kit
ADD ONS	Document Camera	No.
	Echo360 Recording	No
POWER	Floor box 240v Power	Yes
	Table mounted 240v + USB Chargers	Yes

Estimated Cost (per room)
Will be provided upon the RFP process completion.



Room Arrangements



AV Design Guidelines

Large Meeting Rooms

Large Meeting Room

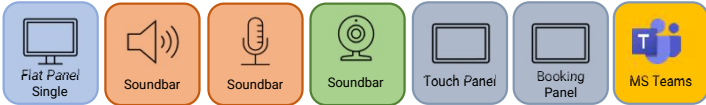
LAR_01_086U_01

General Description

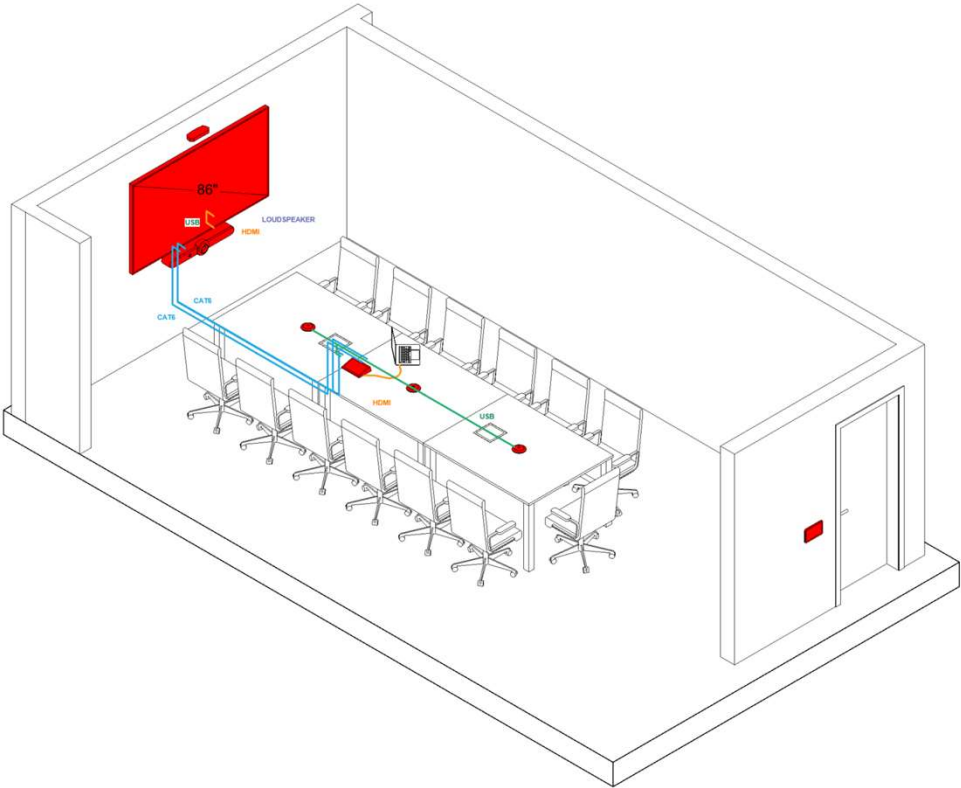
The AV solution consists of a single display with a microphone and speaker combination sound bar with integrated webcam. On the desk is a touch pad controller. A HDMI cable recessed in a box embedded in the table for content sharing. Additionally, a USBC cable is provided for BYOD mode, BYOD mode allows for the use of a laptop and any software to control the soundbar (speakers, microphones, webcam). The AV solution is mounted to the wall. A single 240v power outlet to be provided for every six people supplied at the desk to allow for devices to remain charged during the meeting. The display automatically powers on when detecting the touch screen controller has been activated or a device has been plugged into HDMI. The displays automatically power down after a timeout period. A room scheduling panel is located at the entrance.

ROOM SPECIFICATION	General Room Type	Medium Meeting
	Seating Capacity	10-12
	Area in m2	20-30
	Custom Configuration Available	No
DISPLAY	Main Display	Single Flat Panel
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	86 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	AIO Soundbar
	Conferencing Microphones	Integrated to Soundbar Tabletop Microphones
	Voicelift	No
	Wireless Microphones	No
	Hearing Augmentation	IR Transmitter / Receivers
CAMERA	Conferencing Camera	Integrated to Soundbar
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Touch Panel on Table
	Remote Monitoring	N/A
	Motion Sensor	Crestron PIR CEN-ODT-C-POE
	BYOD Conferencing	USB-A/C
	Room Booking Panel	Crestron TSS-1070-B-S-LB kit
ADD ONS	Document Camera	No.
	Echo360 Recording	No
POWER	Floor box 240v Power	Yes
	Table mounted 240v + USB Chargers	Yes

Estimated Cost (per room)
Will be provided upon the RFP process completion.



Room Arrangements



Large Meeting Room

LAR_02_086U_01

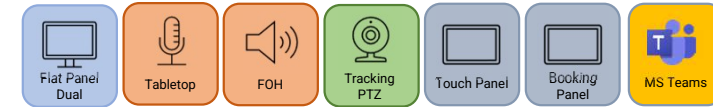
General Description

The AV solution consists of a dual display with separate webcam, microphones, and speakers. On the desk are additional microphones ensuring everyone can be heard clearly, as well as a touch pad controller that includes a HDMI cable for content sharing. Additionally, a USBC cable is provided for BYOD mode. BYOD mode allows for the use of a laptop and any software to control the soundbar (speakers, microphones, webcam). The AV solution is mounted to the wall. A Dual 240v power outlet to be provided for every four people supplied at the desk to allow for devices to remain charged during the meeting. The display automatically powers on when detecting the touch screen controller has been activated or a device has been plugged into HDMI. The displays automatically power down after a timeout period..

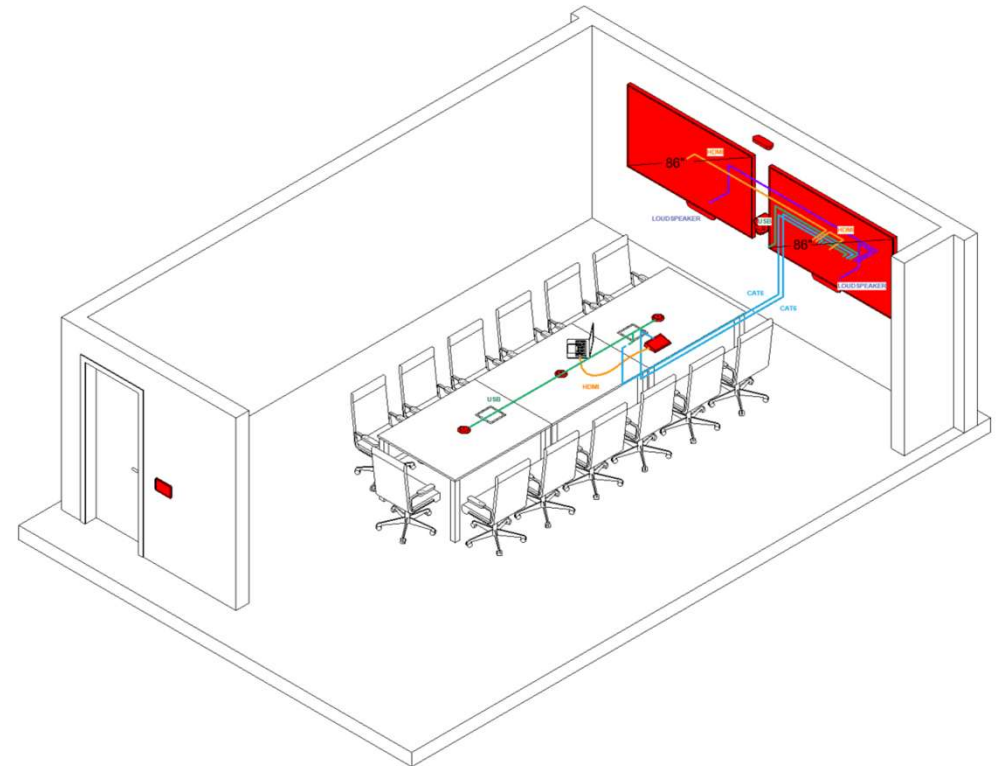
ROOM SPECIFICATION	General Room Type	Large Meeting
	Seating Capacity	14-16
	Area in m2	35
	Custom Configuration Available	No
DISPLAY	Main Display	Dual Flat Panel
	Additional Displays	No
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	86 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	FOH Loudspeaker
	Conferencing Microphones	Tabletop Microphones
	Voicelift	No
	Wireless Microphones	No
	Hearing Augmentation	IR
CAMERA	Conferencing Camera	PTZ x2
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Touch Panel on Table
	Remote Monitoring	N/A
	Motion Sensor	Crestron PIR CEN-ODT-C-POE
	BYOD Conferencing	USB-A/C
	Room Booking Panel	Crestron TSS-1070-B-S-LB kit
ADD ONS	Document Camera	No.
	Echo360 Recording	No
POWER	Floor box 240v Power	Yes
	Table mounted 240v + USB Chargers	Yes

Estimated Cost (per room)

Will be provided upon the RFP process completion.



Room Arrangements



Large Meeting Room

LAR_02_098U_01

General Description

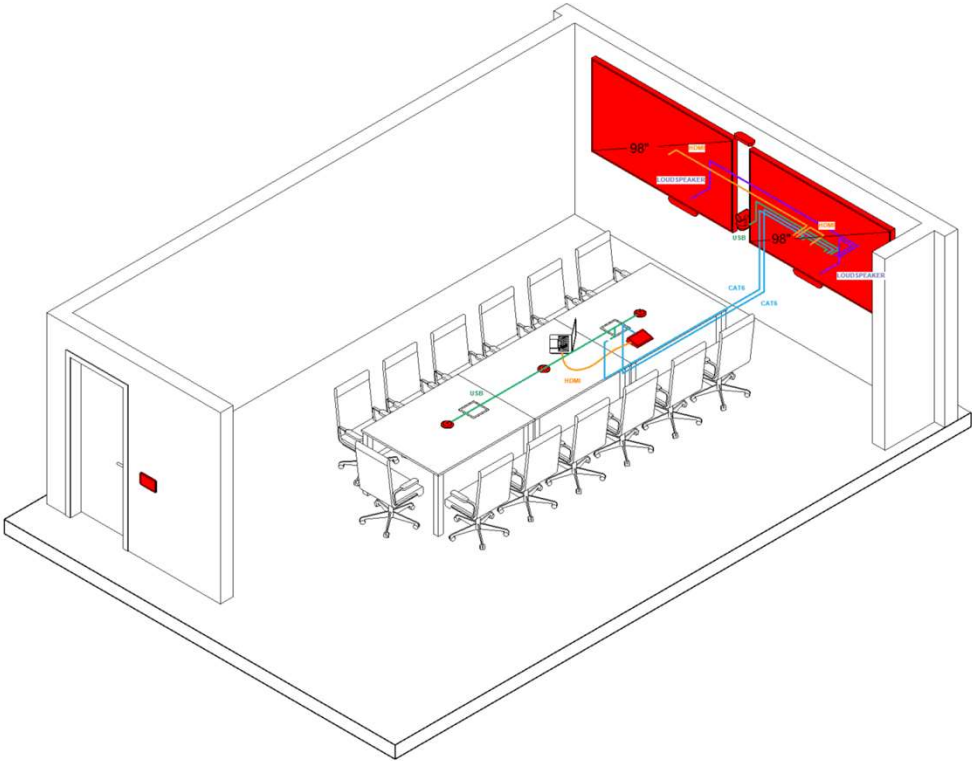
The AV solution consists of a dual display and dual webcams, ceiling microphones, and ceiling speakers. On the desk is a touch pad controller that includes a HDMI cable for content sharing. Additionally, a USBC cable is provided for BYOD mode. BYOD mode allows for the use of a laptop and any software to control the soundbar (speakers, microphones, webcam). The AV solution is mounted to the wall. A Dual 240v power outlet to be provided for every four people supplied at the desk to allow for devices to remain charged during the meeting. The display automatically powers on when detecting the touch screen controller has been activated or a device has been plugged into HDMI. The displays automatically power down after a timeout period.

ROOM SPECIFICATION	General Room Type	Large Meeting
	Seating Capacity	18-20
	Area in m2	35
	Custom Configuration Available	Yes
DISPLAY	Main Display	Dual Flat Panel Displays
	Additional Displays	No
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	98 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	Ceiling Loudspeakers
	Conferencing Microphones	Ceiling Microphone Arrays
	Voicelift	No
	Wireless Microphones	No
	Hearing Augmentation	IR William Sound
CAMERA	Conferencing Camera	PTZ x2
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Wall or Table Touch Panel
	Remote Monitoring	N/A
	Motion Sensor	Crestron PIR CEN-ODT-C-POE
	BYOD Conferencing	USB-A/C
	Room Booking Panel	Crestron TSS-1070-B-S-LB kit
ADD ONS	Document Camera	No.
	Echo360 Recording	No
POWER	Floor box 240v Power	Yes
	Table mounted 240v + USB Chargers	Yes

Estimated Cost (per room)
Will be provided upon the RFP process completion.



Room Arrangements



AV Design Guidelines

Meeting Rooms Enhanced

Meeting Room Enhanced

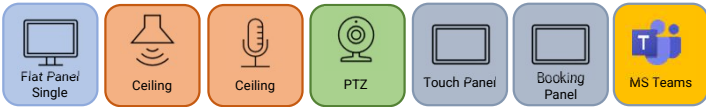
MED_01_075U_01e

General Description

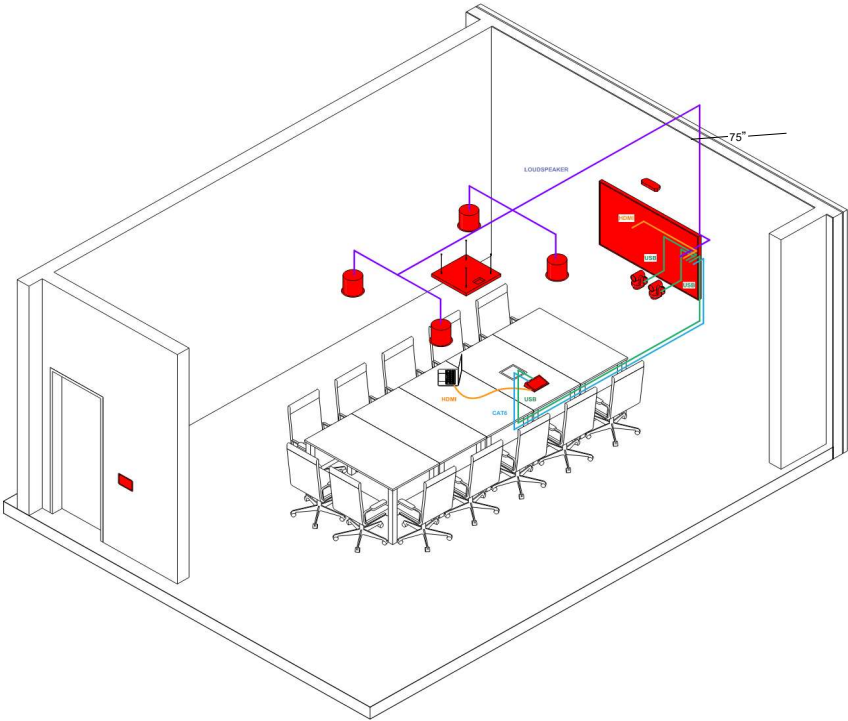
The AV solution consists of a single display, dual webcams, ceiling microphone and speakers. On the desk is a touch pad controller and a HDMI cable for content sharing. Additionally, a USBC cable is provided for BYOD mode. BYOD mode allows for the use of a laptop and any software to control the soundbar (speakers, microphones, webcam). The AV solution is mounted to the wall. A 240v power outlet to be provided for every four people supplied at the desk to allow for devices to remain charged during the meeting. The display automatically powers on when detecting the touch screen controller has been activated or a device has been plugged into HDMI. The displays automatically power down after a timeout period.

ROOM SPECIFICATION	General Room Type	Medium Meeting
	Seating Capacity	12-14
	Area in m2	30
	Custom Configuration Available	No
DISPLAY	Main Display	Single Flat Panel
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	75 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	Ceiling Recess Loudspeakers
	Conferencing Microphones	Ceiling Microphone Array
	Voicelift	No
	Wireless Microphones	No
	Hearing Augmentation	IR Transmitters / Receivers
CAMERA	Conferencing Camera	PTZ x2
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Touch Panel on Table
	Remote Monitoring	N/A
	Motion Sensor	Crestron PIR CEN-ODT-C-POE
	BYOD Conferencing	USB-A/C
	Room Booking Panel	Crestron TSS-1070-B-S-LB kit
ADD ONS	Document Camera	No.
	Echo360 Recording	No
POWER	Floor box 240v Power	Yes
	Table mounted 240v + USB Chargers	Yes

Estimated Cost (per room)
Will be provided upon the RFP process completion.



Room Arrangements



Meeting Room Enhanced

MED_02_075U_01e

General Description

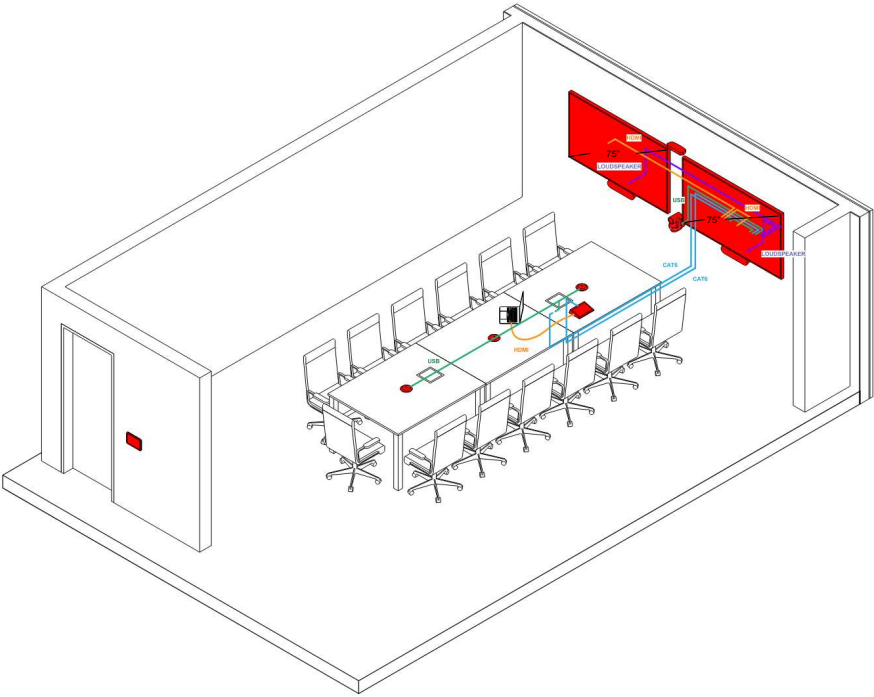
The AV solution consists of a dual display with separate webcam, microphones, and speakers. On the desk are additional microphones ensuring everyone can be heard clearly, as well as a touch pad controller that includes a HDMI cable for content sharing. Additionally, a USBC cable is provided for BYOD mode. BYOD mode allows for the use of a laptop and any software to control the soundbar (speakers, microphones, webcam). The AV solution is mounted to the wall. A Dual 240v power outlet to be provided for every four people supplied at the desk to allow for devices to remain charged during the meeting. The display automatically powers on when detecting the touch screen controller has been activated or a device has been plugged into HDMI. The displays automatically power down after a timeout period..

ROOM SPECIFICATION	General Room Type	Large Meeting
	Seating Capacity	14-16
	Area in m2	35
	Custom Configuration Available	No
DISPLAY	Main Display	Dual Flat Panel
	Additional Displays	No
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	75 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	FOH Loudspeaker
	Conferencing Microphones	Tabletop Microphones
	Voicelift	No
	Wireless Microphones	No
	Hearing Augmentation	IR
CAMERA	Conferencing Camera	PTZ x2
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Touch Panel on Table
	Remote Monitoring	N/A
	Motion Sensor	Crestron PIR CEN-ODT-C-POE
	BYOD Conferencing	USB-A/C
	Room Booking Panel	Crestron TSS-1070-B-S-LB kit
ADD ONS	Document Camera	No.
	Echo360 Recording	No
POWER	Floor box 240v Power	Yes
	Table mounted 240v + USB Chargers	Yes

Estimated Cost (per room)
Will be provided upon the RFP process completion.



Room Arrangements



Meeting Room Enhanced

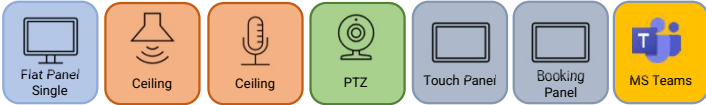
MED_01_086U_01e

General Description

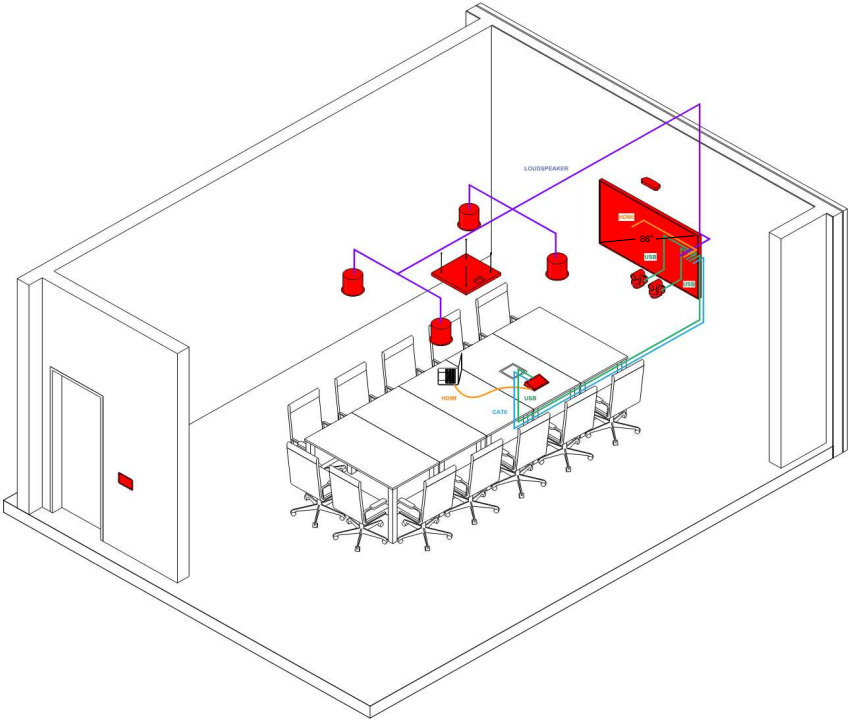
The AV solution consists of a single display, dual webcams, ceiling microphone and speakers. On the desk is a touch pad controller and a HDMI cable for content sharing. Additionally, a USBC cable is provided for BYOD mode. BYOD mode allows for the use of a laptop and any software to control the soundbar (speakers, microphones, webcam). The AV solution is mounted to the wall. A 240v power outlet to be provided for every four people supplied at the desk to allow for devices to remain charged during the meeting. The display automatically powers on when detecting the touch screen controller has been activated or a device has been plugged into HDMI. The displays automatically power down after a timeout period.

ROOM SPECIFICATION	General Room Type	Medium Meeting
	Seating Capacity	12-14
	Area in m2	30
	Custom Configuration Available	No
DISPLAY	Main Display	Single Flat Panel
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	86 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	Ceiling Recess Loudspeakers
	Conferencing Microphones	Ceiling Microphone Array
	Voicelift	No
	Wireless Microphones	No
	Hearing Augmentation	IR Transmitters / Receivers
CAMERA	Conferencing Camera	PTZ x2
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Touch Panel on Table
	Remote Monitoring	N/A
	Motion Sensor	Crestron PIR CEN-ODT-C-POE
	BYOD Conferencing	USB-A/C
	Room Booking Panel	Crestron TSS-1070-B-S-LB kit
ADD ONS	Document Camera	No.
	Echo360 Recording	No
POWER	Floor box 240v Power	Yes
	Table mounted 240v + USB Chargers	Yes

Estimated Cost (per room)
Will be provided upon the RFP process completion.



Room Arrangements



Large Meeting Room

LAR_02_086U_01e

General Description

The AV solution consists of a dual display with separate webcam, microphones, and speakers. On the desk are additional microphones ensuring everyone can be heard clearly, as well as a touch pad controller that includes a HDMI cable for content sharing. Additionally, a USBC cable is provided for BYOD mode. BYOD mode allows for the use of a laptop and any software to control the soundbar (speakers, microphones, webcam). The AV solution is mounted to the wall. A Dual 240v power outlet to be provided for every four people supplied at the desk to allow for devices to remain charged during the meeting. The display automatically powers on when detecting the touch screen controller has been activated or a device has been plugged into HDMI. The displays automatically power down after a timeout period.

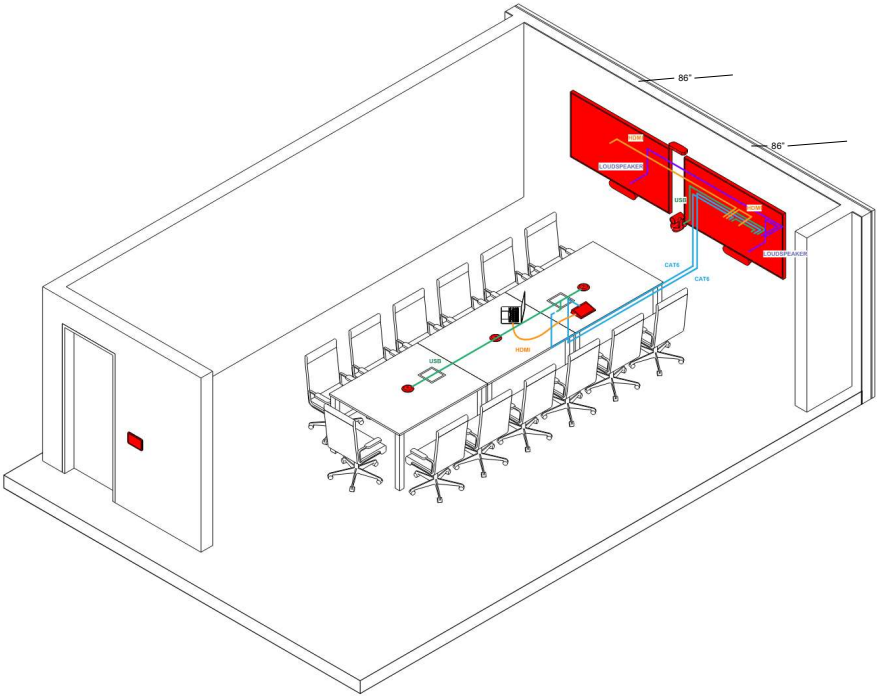
Add Logitech sight

ROOM SPECIFICATION	General Room Type	Large Meeting
	Seating Capacity	14-16
	Area in m2	35
	Custom Configuration Available	No
DISPLAY	Main Display	Dual Flat Panel
	Additional Displays	No
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	86 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	FOH Loudspeaker
	Conferencing Microphones	Tabletop Microphones
	Voicelift	No
	Wireless Microphones	No
	Hearing Augmentation	IR
CAMERA	Conferencing Camera	PTZ x2
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Touch Panel on Table
	Remote Monitoring	N/A
	Motion Sensor	Crestron PIR CEN-ODT-C-POE
	BYOD Conferencing	USB-A/C
	Room Booking Panel	Crestron TSS-1070-B-S-LB kit
ADD ONS	Document Camera	No.
	Echo360 Recording	No
POWER	Floor box 240v Power	Yes
	Table mounted 240v + USB Chargers	Yes

Estimated Cost (per room)
Will be provided upon the RFP process completion.



Room Arrangements



Meeting Room Enhanced

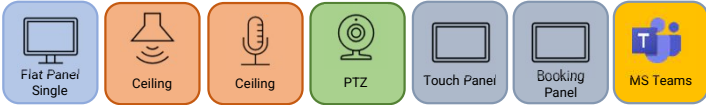
LAR_01_098U_01e

General Description

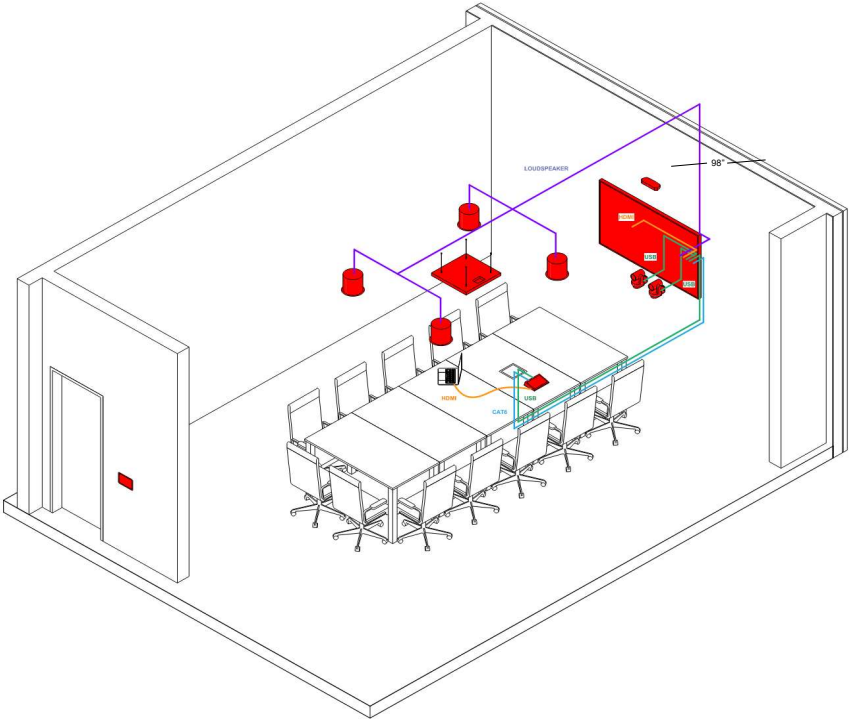
The AV solution consists of a single display, dual webcams, ceiling microphone and speakers. On the desk is a touch pad controller and a HDMI cable for content sharing. Additionally, a USBC cable is provided for BYOD mode. BYOD mode allows for the use of a laptop and any software to control the soundbar (speakers, microphones, webcam). The AV solution is mounted to the wall. A 240v power outlet to be provided for every four people supplied at the desk to allow for devices to remain charged during the meeting. The display automatically powers on when detecting the touch screen controller has been activated or a device has been plugged into HDMI. The displays automatically power down after a timeout period.

ROOM SPECIFICATION	General Room Type	Medium Meeting
	Seating Capacity	12-14
	Area in m2	30
	Custom Configuration Available	No
DISPLAY	Main Display	Single Flat Panel
	Additional Displays	N/A
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	98 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	Ceiling Recess Loudspeakers
	Conferencing Microphones	Ceiling Microphone Array
	Voicelift	No
	Wireless Microphones	No
	Hearing Augmentation	IR Transmitters / Receivers
CAMERA	Conferencing Camera	PTZ x2
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Touch Panel on Table
	Remote Monitoring	N/A
	Motion Sensor	Crestron PIR CEN-ODT-C-POE
	BYOD Conferencing	USB-A/C
	Room Booking Panel	Crestron TSS-1070-B-S-LB kit
ADD ONS	Document Camera	No.
	Echo360 Recording	No
POWER	Floor box 240v Power	Yes
	Table mounted 240v + USB Chargers	Yes

Estimated Cost (per room)
Will be provided upon the RFP process completion.



Room Arrangements



Meeting Room Enhanced

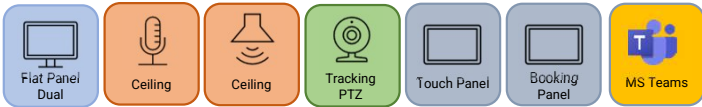
LAR_02_098U_01e

General Description

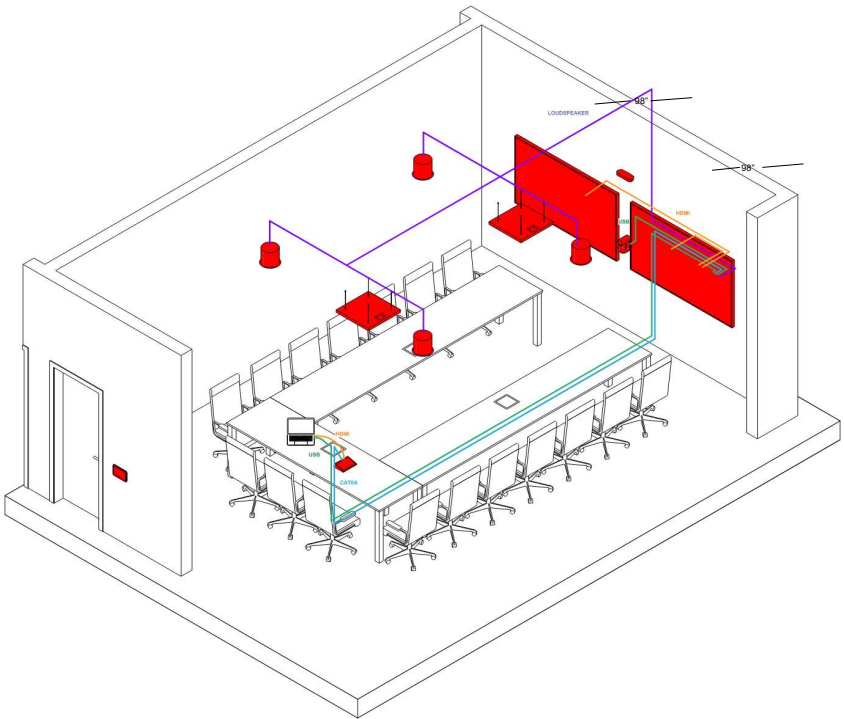
The AV solution consists of a dual display and dual webcams, ceiling microphones, and ceiling speakers. On the desk is a touch pad controller that includes a HDMI cable for content sharing. Additionally, a USBC cable is provided for BYOD mode. BYOD mode allows for the use of a laptop and any software to control the soundbar (speakers, microphones, webcam). The AV solution is mounted to the wall. A Dual 240v power outlet to be provided for every four people supplied at the desk to allow for devices to remain charged during the meeting. The display automatically powers on when detecting the touch screen controller has been activated or a device has been plugged into HDMI. The displays automatically power down after a timeout period.

ROOM SPECIFICATION	General Room Type	Large Meeting
	Seating Capacity	18-20
	Area in m2	35
	Custom Configuration Available	Yes
DISPLAY	Main Display	Dual Flat Panel Displays
	Additional Displays	No
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	98 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	Ceiling Loudspeakers
	Conferencing Microphones	Ceiling Microphone Arrays
	Voicelift	No
	Wireless Microphones	No
	Hearing Augmentation	IR William Sound
CAMERA	Conferencing Camera	PTZ x2
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Wall or Table Touch Panel
	Remote Monitoring	N/A
	Motion Sensor	Crestron PIR CEN-ODT-C-POE
	BYOD Conferencing	USB-A/C
	Room Booking Panel	Crestron TSS-1070-B-S-LB kit
ADD ONS	Document Camera	No.
	Echo360 Recording	No
POWER	Floor box 240v Power	Yes
	Table mounted 240v + USB Chargers	Yes

Estimated Cost (per room)
Will be provided upon the RFP process completion.



Room Arrangements



Meeting Room Enhanced

LAR_01_PRJU_01e

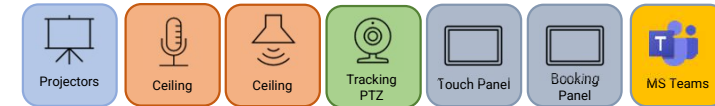
General Description

The AV solution consists of a projector and dual webcams, ceiling microphones, and ceiling speakers. On the desk is a touch pad controller that includes a HDMI cable for content sharing. Additionally, a USBC cable is provided for BYOD mode. BYOD mode allows for the use of a laptop and any software to control the soundbar (speakers, microphones, webcam). The AV solution is mounted to the wall. A Dual 240v power outlet to be provided for every four people supplied at the desk to allow for devices to remain charged during the meeting. The display automatically powers on when detecting the touch screen controller has been activated or a device has been plugged into HDMI. The displays automatically power down after a timeout period.

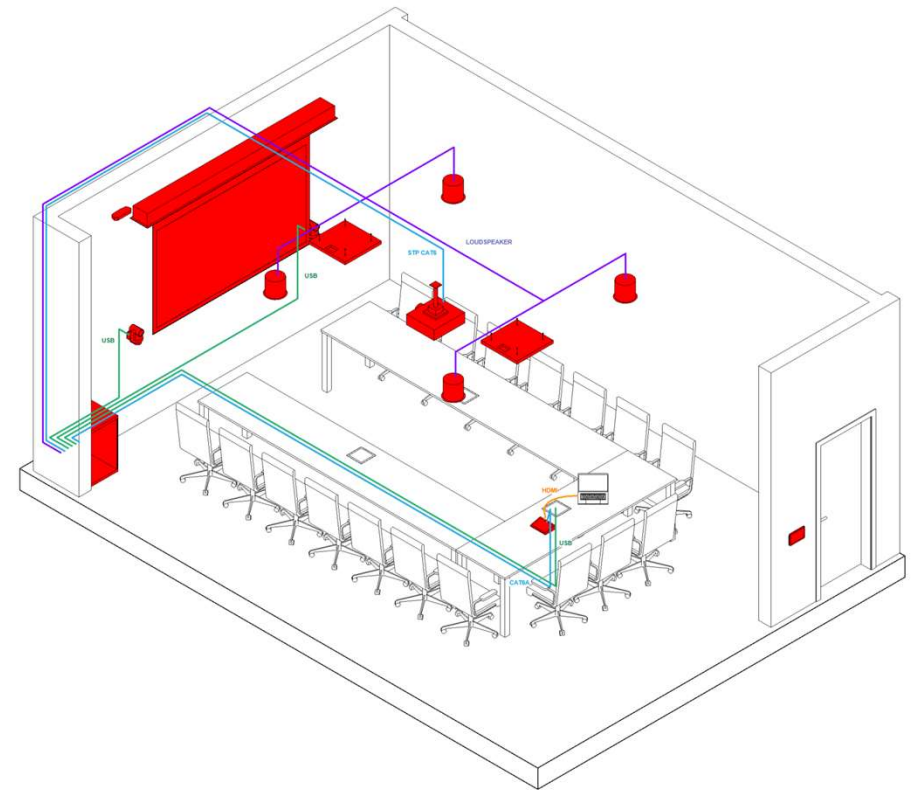
ROOM SPECIFICATION	General Room Type	Large Meeting
	Seating Capacity	16-20
	Area in m2	35
	Custom Configuration Available	No
DISPLAY	Main Display	Projector & Motorised Screen
	Additional Displays	No
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	Projector (size varies)
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	Ceiling Loudspeakers
	Conferencing Microphones	Ceiling Microphone Arrays
	Voicelift	No
	Wireless Microphones	No
	Hearing Augmentation	IR
CAMERA	Conferencing Camera	PTZ x2
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Touch Panel on Table
	Remote Monitoring	N/A
	Motion Sensor	Crestron PIR CEN-ODT-C-POE
	BYOD Conferencing	USB-A/C
	Room Booking Panel	Crestron TSS-1070-B-S-LB kit
ADD ONS	Document Camera	No.
	Echo360 Recording	No
POWER	Floor box 240v Power	Yes
	Table mounted 240v + USB Chargers	Yes

Estimated Cost (per room)

Will be provided upon the RFP process completion.



Room Arrangements



Slide 68

AS0

The cameras cannot be in the projected image, move to either side of the screen

Adriano Salutari, 2023-09-18T00:46:23.724

AV Design Guidelines

Boardrooms

Boardroom

BOR_02_086U_01e

General Description

The AV solution consists of a dual display and multiple webcams, ceiling microphones, and ceiling speakers. On the desk is a touch pad controller that includes a HDMI cable for content sharing. Additionally, a USBC cable is provided for BYOD mode. BYOD mode allows for the use of a laptop and any software to control the soundbar (speakers, microphones, webcam). The AV solution is mounted to the wall. A Dual 240v power outlet to be provided for every four people supplied at the desk to allow for devices to remain charged during the meeting. The display automatically powers on when detecting the touch screen controller has been activated or a device has been plugged into HDMI. The displays automatically power down after a timeout period.

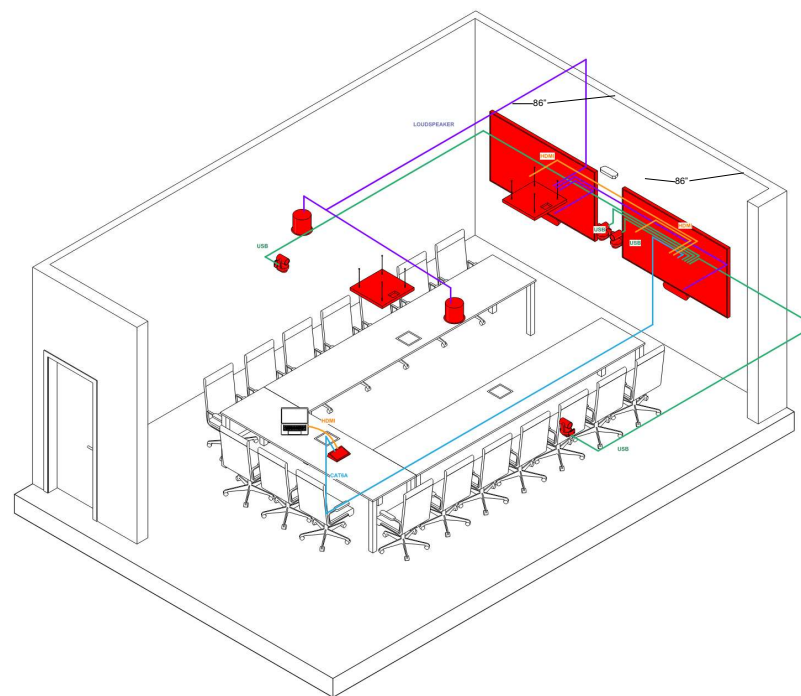
ROOM SPECIFICATION	General Room Type	Boardroom
	Seating Capacity	16+
	Area in m2	35
	Custom Configuration Available	No
DISPLAY	Main Display	Dual Flat Panel
	Additional Displays	No
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	86 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	FOH Loudspeakers Ceiling Loudspeakers
	Conferencing Microphones	Ceiling Microphone Arrays
	Voicelift	No
	Wireless Microphones	No
	Hearing Augmentation	IR
CAMERA	Conferencing Camera	PTZ x2
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Touch Panel on Table
	Remote Monitoring	N/A
	Motion Sensor	Crestron PIR CEN-ODT-C-POE
	BYOD Conferencing	USB-A/C
	Room Booking Panel	Crestron TSS-1070-B-S-LB kit
ADD ONS	Document Camera	No.
	Echo360 Recording	No
POWER	Floor box 240v Power	Yes
	Table mounted 240v + USB Chargers	Yes

Estimated Cost (per room)

Will be provided upon the RFP process completion.



Room Arrangements



Boardroom

BOR_02_098U_01e

General Description

The AV solution consists of a dual display and multiple webcams, ceiling microphones, and ceiling speakers. On the desk is a touch pad controller that includes a HDMI cable for content sharing. Additionally, a USBC cable is provided for BYOD mode. BYOD mode allows for the use of a laptop and any software to control the soundbar (speakers, microphones, webcam). The AV solution is mounted to the wall. A Dual 240v power outlet to be provided for every four people supplied at the desk to allow for devices to remain charged during the meeting. The display automatically powers on when detecting the touch screen controller has been activated or a device has been plugged into HDMI. The displays automatically power down after a timeout period.

Large 98" at front
75" either side

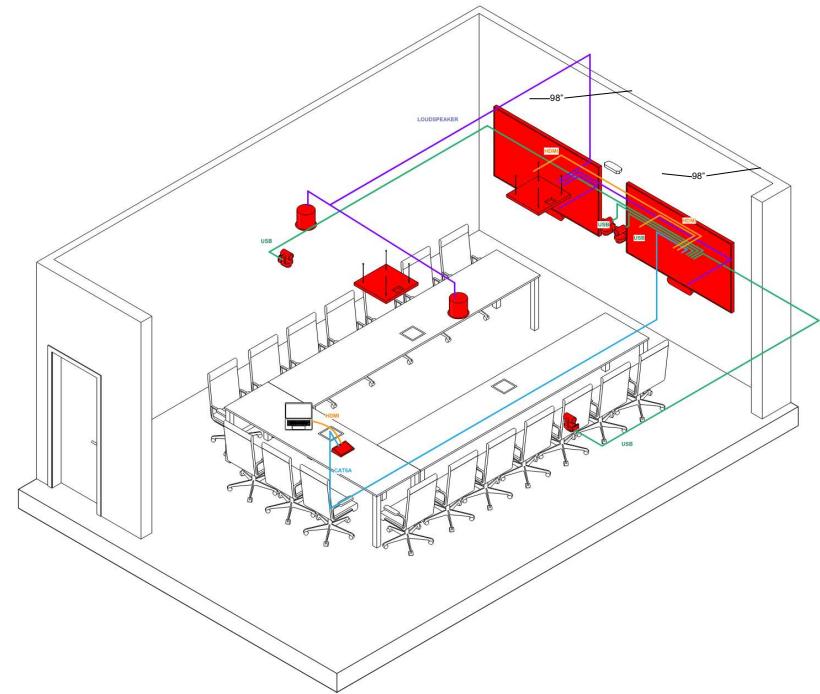
ROOM SPECIFICATION	General Room Type	Boardroom
	Seating Capacity	16+
	Area in m2	35
	Custom Configuration Available	No
DISPLAY	Main Display	Dual Flat Panel
	Additional Displays	No
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	98 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	FOH Loudspeakers Ceiling Loudspeakers
	Conferencing Microphones	Ceiling Microphone Arrays
	Voicelift	No
	Wireless Microphones	No
	Hearing Augmentation	IR
CAMERA	Conferencing Camera	PTZ x2
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Touch Panel on Table
	Remote Monitoring	N/A
	Motion Sensor	Crestron PIR CEN-ODT-C-POE
	BYOD Conferencing	USB-A/C
	Room Booking Panel	Crestron TSS-1070-B-S-LB kit
ADD ONS	Document Camera	No.
	Echo360 Recording	No
POWER	Floor box 240v Power	Yes
	Table mounted 240v + USB Chargers	Yes

Estimated Cost (per room)

Will be provided upon the RFP process completion.



Room Arrangements



Boardroom

BOR_04_086U_01e

General Description

The AV solution consists of displays on multiple walls and multiple webcams, ceiling microphones, and ceiling speakers. On the desk is a touch pad controller that includes a HDMI cable for content sharing. Additionally, a USBC cable is provided for BYOD mode. BYOD mode allows for the use of a laptop and any software to control the soundbar (speakers, microphones, webcam). The AV solution is mounted to the wall. A Dual 240v power outlet to be provided for every four people supplied at the desk to allow for devices to remain charged during the meeting. The display automatically powers on when detecting the touch screen controller has been activated or a device has been plugged into HDMI. The displays automatically power down after a timeout period.

ROOM SPECIFICATION	General Room Type	Boardroom
	Seating Capacity	20+
	Area in m2	35
	Custom Configuration Available	No
DISPLAY	Main Display	Dual Flat Panel
	Additional Displays	No
	Confidence Monitor	No
	Relay Displays	No
	Screen Size	86 Inch
	Display Inputs	Laptop (HDMI) MS Teams CAST
AUDIO	Loudspeaker Type	Ceiling Loudspeakers
	Conferencing Microphones	Ceiling Microphone Arrays
	Voicelift	No
	Wireless Microphones	No
	Hearing Augmentation	IR
CAMERA	Conferencing Camera	PTZ x2
	Other Camera Options	No
	Additional Options	N/A
CONTROL	Controller	Touch Panel on Table
	Remote Monitoring	N/A
	Motion Sensor	Crestron PIR CEN-ODT-C-POE
	BYOD Conferencing	USB-A/C
	Room Booking Panel	Crestron TSS-1070-B-S-LB kit
ADD ONS	Document Camera	No.
	Echo360 Recording	No
POWER	Floor box 240v Power	Yes
	Table mounted 240v + USB Chargers	Yes

Estimated Cost (per room)
Will be provided upon the RFP process completion.



Room Arrangements

