



The Solution

This solution provides a compact and efficient multi-camera video production system centred around the ALF-VM41 video mixer, designed for live presentation, streaming, and recording applications. The VM41 acts as the core processing hub, managing multiple video sources while delivering seamless switching and high-quality output for both in-room display and online distribution.

The system utilises three ALF-20X-CAM PTZ cameras, each connected via HDMI and extended over ALF-TPUK150-RS transmitter and receiver sets. This allows the cameras to be installed at optimal positions throughout the space while maintaining reliable long-distance signal transmission back to the mixer. In addition to the camera feeds, a laptop is connected directly via HDMI, enabling presentation content, media playback, or external inputs to be easily integrated into the production workflow.

The ALF-VM41 enables smooth and professional switching between all connected sources, allowing operators to transition between camera angles and presentation content without visible interruptions. The mixed output is distributed to a main display for audience viewing, while a separate confidence or preview monitor provides real-time feedback for the operator or presenter, ensuring accurate control during live operation.

Audio is integrated through an external mixing desk, with the VM41 supporting headphone monitoring for real-time audio verification. This ensures consistent audio quality during live production and streaming scenarios. The system also supports streaming functionality, allowing video content to be broadcast directly to online platforms or recorded for later use, making it ideal for hybrid environments.

The system architecture is designed for flexibility and scalability, allowing additional sources or displays to be incorporated as needed without significant changes to the core setup. The use of HDMI extension over CAT cabling reduces installation complexity and keeps equipment racks centralized, while maintaining high signal integrity. This makes the solution particularly well suited for environments where clean installation, reliable performance, and ease of operation are key requirements.

Overall, this solution combines long-distance HDMI extension, multi-camera capture, and centralized video mixing into a streamlined system. With the ALF-VM41 at its core, it delivers reliable performance, flexible source integration, and professional output, making it well suited for classrooms, corporate presentations, live events, and content creation environments.

ALF-VM41 Overview

The ALF-VM41 is a compact and professional video mixer designed for live production, streaming, and multi-source presentation environments. It combines video switching, processing, and output management into a single streamlined unit, making it ideal for applications such as classrooms, corporate meeting spaces, houses of worship, and live events where reliable and easy-to-use production tools are required.

The unit supports multiple HDMI inputs, allowing connection of PTZ cameras, laptops, and other video sources, with seamless switching between inputs to ensure smooth and uninterrupted transitions. Built-in video processing and scaling ensure consistent output resolution and optimal image quality across all connected displays and recording devices.

A built-in 5.5" Full HD display provides real-time preview and system monitoring, allowing operators to view active sources, check layouts, and manage switching directly from the unit without requiring an external monitor. This enhances usability and simplifies setup, especially in compact or mobile production environments.

The ALF-VM41 provides flexible output options, enabling simultaneous connection to a main display and a confidence or preview monitor. This allows content to be shared with an audience while giving operators or presenters real-time visibility of the active source. The system also supports USB output for use as a webcam source, making it easy to integrate with UC platforms such as Teams, Zoom, or streaming software like OBS.

Audio integration is supported through external audio sources, with headphone monitoring available for real-time audio verification during live production. This ensures accurate control of audio levels and overall system performance. With its compact design, intuitive operation, and integrated streaming capability, the ALF-VM41 delivers a complete and efficient solution for professional video mixing. It is well suited for environments requiring high-quality multi-source switching, local display output, and live content distribution.

ALF-20X-CAM Overview

The ALF-20X-CAM is a professional PTZ camera designed for high-quality video capture in conferencing, streaming, and live production environments. Featuring a 20x optical zoom lens, it delivers clear and detailed images across medium to large spaces, making it ideal for meeting rooms, classrooms, houses of worship, and corporate presentation environments where flexible camera coverage is required.

The camera supports HDMI output, enabling easy integration with AV systems and video switchers, while also being well suited for extended installations when paired with HDMI extension solutions. Its smooth and precise pan, tilt, and zoom functionality allows operators to create dynamic shots and quickly recall preset positions, ensuring consistent and professional results during live use.

Control is supported via standard interfaces such as RS-232 and RS-485, allowing seamless integration with third-party control systems or joystick controllers for centralized operation. This makes the camera suitable for both manual control and automated workflows within larger AV systems. With its combination of reliable performance, flexible connectivity, and professional PTZ control, the ALF-20X-CAM provides a versatile and cost-effective solution for capturing high-quality video in a wide range of applications.

ALF-TPUK-RS Overview

The ALF-TPUK150-RS is a professional HDBaseT transmitter and receiver extender set designed to deliver high-quality HDMI, USB, and control signals over long distances using a single CAT cable. Supporting transmission distances of up to 150 metres, it provides a reliable solution for extending AV signals in meeting rooms, classrooms, and large-scale installations where equipment needs to be located far from the display or control position.

The system supports HDMI video extension with high signal integrity, ensuring stable and consistent image quality across extended runs without noticeable degradation. In addition to video, the TPUK150-RS enables USB extension, allowing devices such as cameras, microphones, or touch displays to be connected remotely while maintaining full functionality at the host location.

Integrated RS-232 pass-through allows for control signal extension alongside video and USB, enabling remote management of connected devices such as displays or cameras. This makes it ideal for systems requiring centralized control without additional cabling infrastructure.

With its ability to extend multiple signal types over a single cable, combined with reliable long-distance performance and simple installation, the ALF-TPUK150-RS provides a flexible and efficient solution for modern AV and collaboration environments.

Solution Bill of Quantities

- 1 x ALF-VM41 Video Mixer
- 3 x ALF-20X-CAM PTZ camera
- 4 x ALF-TPUK150-RS HDMI extender kit
- 9 x ALF-HDMI 3.3ft HDMI Cables
- 1 x ALF-HDMI 16.5ft Cables

Third Party Equipment

- 1 x Room Display
- 1x Room display mounting bracket
- 1 x Preview Monitor
- 1 x Audio mixer /mixing desk
- 1 x PoE Network Switch

Solution Use Cases

1. Lecture Capture and Hybrid Classroom

In an education environment, the system enables lecturers to deliver engaging sessions using multiple camera angles and presentation content. The ALF-20X-CAM cameras capture the lecturer, audience, and whiteboard, with signals extended over ALF-TPUK150-RS for flexible placement. A laptop provides slides or media input, all managed through the ALF-VM41 for seamless switching. The output is sent to a main display for students and a confidence monitor for the presenter, while built-in streaming allows sessions to be broadcast or recorded for remote learners.

2. Corporate Meeting and Training Rooms

For corporate training or boardroom environments, the system allows presenters to switch between camera views and laptop content with ease. The ALF-VM41 provides a simple and professional switching interface, supported by its built-in 5.5" Full HD display for real-time monitoring. Content is displayed on a main screen for participants, with a confidence monitor assisting the presenter. The system also supports streaming to platforms such as Teams or Zoom, making it ideal for hybrid meetings and remote collaboration.

3. Live Events and Small Production Setups

In live event or small production scenarios, the system delivers a compact yet powerful multi-camera solution. Cameras positioned around the venue are connected via HDMI extenders, feeding into the ALF-VM41 for smooth transitions between shots. The operator can monitor all sources directly on the built-in display, while outputs are sent to venue screens and monitoring displays. With headphone support for audio monitoring and streaming capability, the system ensures a professional production workflow for both in-room and online audiences.

4. Houses of Worship and Streaming Services

In a worship environment, the system enables high-quality video capture and live streaming of services. Multiple PTZ cameras provide different viewing angles of the stage and congregation, while a laptop input allows lyrics or announcements to be included in the mix. The ALF-VM41 manages all sources, outputting to in-room displays and a confidence monitor for the production team. With integrated streaming and audio monitoring via headphones, the system ensures a smooth and reliable broadcast experience for both on-site and remote viewers.