



CASE STUDY

Extron AV Products Instrumental to Bringing Hybrid Learning to Germany's Otto-von-Guericke-University

Extron



Building 5, shown here, and the Campus Welcome Center, shown on the previous page, are two of many buildings on the Otto-von-Guericke-University Magdeburg campus to get AV teaching system makeovers.

“Besides providing evaluation products for real world proof-of-concept testing on the University’s network, Extron stood out with their upfront support, knowhow, and design advice based on technical evaluation of the campus network topology, bandwidth, and traffic loading conditions. This ensured a flawless testing process and created the confidence needed to deploy NAV on a larger scale.”

Karl Christian Balzer
IT System Administrator
Otto-von-Guericke-University

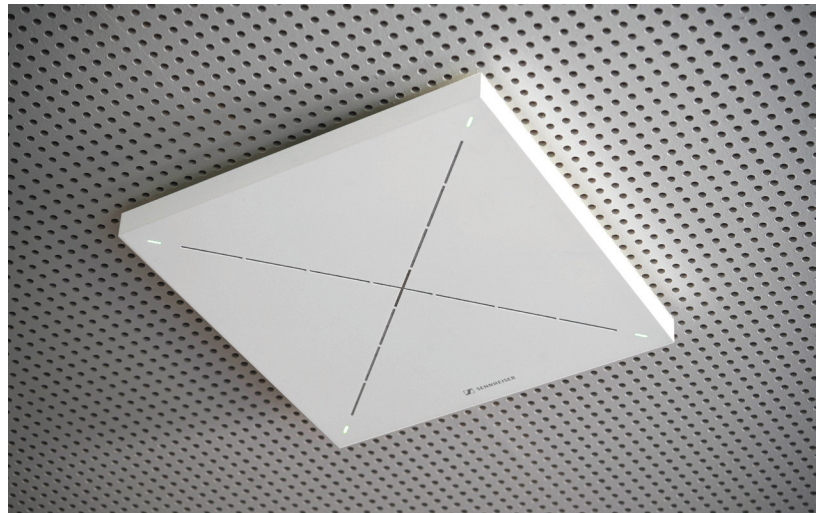
Otto-von-Guericke-University Magdeburg (OVGU) is a public research university founded in 1993 in Magdeburg, Germany. It has 12,500+ students studying for degrees in nine faculties spanning specialties in engineering, science, medicine, education, and economics. The main research areas of the university are neuroscience, biosystems technology, disease prevention, automotive research, digital engineering, and renewable energy.

CHALLENGES

OVGU considers itself to be a face-to-face university, but also sees hybrid learning as a way to reach a more diverse and international student population. Students with permanent or temporary mobility or commuting restrictions, or those who have commitments that make it inconvenient to attend classes in person, can comfortably participate in courses and interact with their on-campus peers via video conference. Instructors benefit from the ability to reach a wider circle of interested parties, have broader options to invite expert guest speakers whose busy schedules preclude on-campus appearances, and can hone their teaching techniques by observing themselves on recorded class sessions.

The campus has more than 100 rooms equipped with audiovisual teaching technology. These include large and small seminar rooms, lecture halls, conference rooms, and the Campus Welcome Center. The university adopted a long-term initiative to upgrade and standardize all AV systems across the campus to enable hybrid learning and to make AV system support more efficient. The University’s in-house IT/AV department designed and installed the upgraded AV systems in consultation with key AV equipment suppliers, including Extron.

A key design requirement for the AV upgrade entailed distribution of AV content over the university’s existing enterprise network to take advantage of inherent cost savings from using existing physical cable plant infrastructure. Multiple AV over IP solutions were tested on the university network. Extron NAV® Pro AV over IP was selected for its demonstrated reliability and the high image quality produced by the PURE3® codec on the converged network.



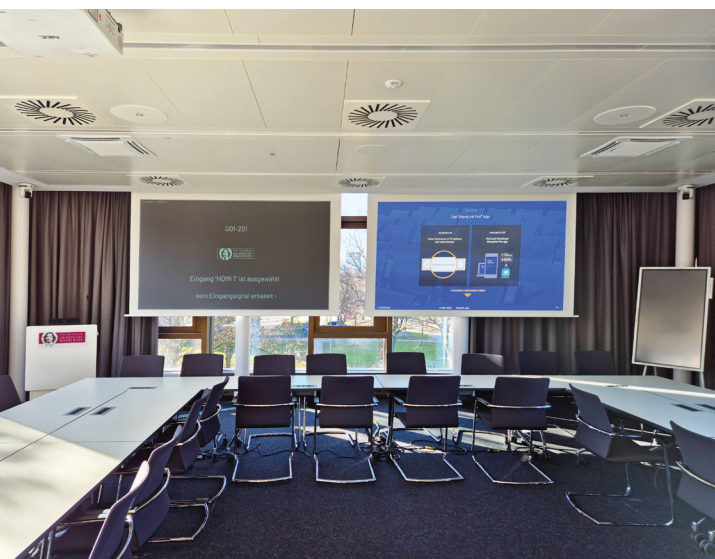
Large classroom with single projector, AV-equipped instructor desk, tracking PTZ camera, ceiling array microphone.

DESIGN SOLUTION

A range of Extron technologies were used to outfit the upgraded AV systems. The NAV system is the AV over IP switching and distribution backbone. At the endpoints are DMP Plus audio DSP processors, NetPA® amplifiers, ShareLink® Pro presentation systems, SMP streaming media processors, and MediaPort® USB scaling bridges. Controlling it all are IPCP Pro xi Series control processors, TouchLink® Pro touchpanels, and GlobalViewer® Enterprise (GVE) AV resource management software.

Large Rooms Benefit from NAV Pro AV over IP Flexibility and Scalability

The NAV Series, with its flexibility to easily add or remove endpoints as needed, performs AV signal switching and distribution in large classrooms and lecture theaters. The NAV System also anchors AV in the Campus Welcome Center. AV sources send HDMI content to the AV over IP network through NAV E 101 encoders. AV destinations receive HDMI content from NAV SD 101 scaling decoders. The NAVigator System Manager configures, manages, and controls the NAV endpoints and is fully integrated with the Extron Pro Series control system.



A variety of Extron NAV Pro, SMP, MediaPort, and DTP AV equipment enables this conference room at the Campus Welcome Center to conduct sophisticated audiovisual presentation events that include dual projection screens, streaming to the Internet, and videoconferencing via UC applications like Zoom and Teams.

AV-Equipped Instructor Desk. Audiovisual teaching content originates at the instructor desk. Several AV sources are available: a PC, a guest laptop plugged-in at a desktop Cable Cubby®, a document camera, and a ShareLink® Pro 1100 for wireless sharing from portable devices. To support hybrid learning sessions via Zoom and [BigBlueButton®](#), the desk contains a MediaPort 300 that interfaces the AV system via USB to UC software codec conferencing applications that run on the instructor desk PC or laptop. NAV E 501 encoders and NAV SD 501 scaling decoders route USB content over the network to the MediaPort units and also switch the USB connection of the MediaPort units between the built-in PC and the guest laptop.

Recording and Streaming. AV content from any of the large rooms can be recorded and/or live streamed by SMP 352 streaming media processors. The SMP 352s receive instructional content or PTZ camera content, selected and supplied by the NAV AV over IP network.

Microphones, PTZ Cameras, and Projectors Support Hybrid Learning. The large rooms include mics, cameras, ceiling speakers, and projectors that allow interaction between those in



Lecture halls are equipped with primary and backup dual projectors, AV-equipped instructor desk, tracking PTZ camera, and ceiling array microphone. Small classrooms are equipped with a single projector, AV-equipped instructor desk, and ceiling-mounted speaker.



the room and those attending remotely. Wireless microphones allow instructors and presenters to be heard clearly by those in the room and by remote attendees. Wide coverage ceiling array microphones capture other sounds in the room to allow remote attendees to experience in-room ambiance.

A PTZ camera can aim at pre-programmed locations or track the motion of presenters. Projectors display instructional material and/or teleconference video delivered via the AV over IP network. Lecture halls are equipped with two projectors. Depending on the room, both projectors can be used simultaneously, or the second projector functions as a backup if the primary is down for any reason.

Presentation Switchers Benefit Small Rooms

In the small rooms, four-input IN1804 DO scaling switchers perform AV signal switching and DTP2 distribution of AV content over CATx cable. In most other respects, the small rooms have the same AV system amenities as the large rooms, including a diverse selection of AV content sources, audio capabilities, projectors, and video conferencing that supports hybrid learning.



AV equipment: (Top Left) large classroom AV equipment rack and (Top Right) small classroom AV equipment rack.

(Bottom Left) In large rooms, ultra-wide TouchLink Pro touchpanels provide the user interface and (Bottom Center) Cable Cubby cable access enclosures provide AV connectivity and AC power. The ultra-wide touchpanel also displays a confidence monitor to show presentation video, PTZ camera video, or SMP streaming content.

(Bottom Right) 7" TouchLink Pro touchpanels provide the user interface in small rooms.

In keeping with the reduced needs of the small rooms, the instructor desks don't include PC's, instead relying solely on BYOD laptops. Because presenters don't need wireless mics to be heard in the smaller spaces, such mics are not included. MediaPort 200's with 2K video resolution support videoconferencing instead of the 4K MediaPort 300's used in the large rooms. Although planned for the future, the small rooms are not currently equipped with the SMP 352's that perform recording and streaming in the larger rooms.

AV System Control

IPCP Pro 250 xi control processors operate the AV systems in both the large and small rooms. In some buildings, the existing building automation system is integrated with the Extron control system, allowing control of room lighting and raising/lowering projection screens from the AV system touchpanels.

The large rooms have 12" Ultra-wide TouchLink Pro touchpanels. These touchpanels include a confidence monitor feature that allows windowed or full-screen display of lecture content, PTZ camera video, or SMP streaming content. DXP 42 HD 4K PLUS matrix switchers select confidence monitor content in response



TLS scheduling touchpanels at room entrances show occupancy status, booking time availabilities, and titles of events taking place.



to user choices entered through the touchpanel GUI. 7" TouchLink Pro touchpanels provide the operator interface in small rooms.

OVGU media technicians are Extron trained and certified on Global Configurator Professional and also hold Extron Authorized Programmer certification that enables access to all features of Extron's ControlScript utilities, and the ControlScript® Python library for programming Extron Pro Series control systems. The University's own staff creates, manages, and deploys all of the Extron AV control systems on campus. They develop their own touchpanel GUIs in close collaboration with university instructors, which enhances the overall user experience and streamlines changes and updates. Taking AV system maintenance efficiency a step further, OVGU also deployed GlobalViewer® Enterprise AV resource management software to monitor and maintain all AV-equipped rooms remotely from a centralized help desk location.

Room Scheduling

In addition to incorporating Extron AV solutions in learning spaces across the campus, OVGU uses Extron room scheduling technology, including Room Agent™ software and TLS TouchLink

“Using Global Configurator Pro and IP Link Pro xi control processors enables the University to create, manage and deploy all AV control systems without having to bring in third party programmers. OVGU in-house media technicians attained Extron Control Professional Certification through instructor led and on-line training, which prepared them to perform these tasks themselves.”

Richard Zabries
Media Technician
Otto-von-Guericke-University

scheduling panels. Users can make reservations directly from these panels, from a computer, or a smartphone or tablet. Scheduling panels at room entry doors show red and green backlighting to indicate occupancy status. The customized user interface on the scheduling panels shows booking time availabilities and titles of courses and events scheduled for the rooms.

RESULTS

As expressed on the OVGU’s web page, [Digital Teaching at OVGU](#), the University sees digitization as an opportunity to react to the changing demands of students and teachers and to address the diversity of both groups of stakeholders in its teaching. The University has translated this philosophy into action, continually upgrading the digital tools that it provides to faculty and students and providing technical support to users so they can effectively use the technology to create the best academic achievement outcomes.

An important component of the digital toolbox is the array of audiovisual teaching systems used to convey information to in-person attendees in classrooms and lecture halls, as well as to remote attendees through hybrid learning that includes real time videoconferencing and on-demand recordings. The University continues its campaign to upgrade its AV systems to the latest Extron technology, methodically working its way through the many instructional spaces until conversion is completed campuswide.

From design through commissioning and continuing into day-to-day use of audiovisual systems by instructors and students, the University has expressed complete satisfaction with Extron’s product performance, reliability, ease of use, and Extron’s technical support. This has created a professional relationship that will continue well beyond current AV upgrade projects.

Photos courtesy of Otto-von-Guericke-University

FEATURED EXTRON PRODUCTS

Model	Description
NAV E 101	1G Pro AV over IP Encoder - HDMI
NAV E 501	1G Pro AV over IP Encoder - HDMI, Ethernet, and USB
NAV SD 101	1G Pro AV over IP Scaling Decoder - HDMI
NAV SD 501	1G Pro AV over IP Scaling Decoder - HDMI, Ethernet, and USB
NAVigator	Pro AV over IP System Manager
DXP 42 HD 4K PLUS	4K/60 HDMI Matrix Switchers with Audio De-Embedding
IN1804 DO	Four Input 4K/60 Seamless Scaling Switchers
MediaPort 200	HDMI and Audio to USB Scaling Bridge
MediaPort 300	4K HDMI and Audio to USB Scaling Bridge
SMP 352	Dual Recording H.264 Streaming Media Processor
ShareLink Pro 1100	Wired and Wireless Presentation System
DMP 64 Plus	6x4 ProDSP™ Audio DSP Processor
DMP 128 Plus	12x8 ProDSP Audio DSP Processor
NetPA U 1002	Two Channel Power Amplifiers with Dante and DSP 100 Watts Per Channel
TLP Pro 1230WTG	12" Ultra-wide Tabletop TouchLink Pro Touchpanel
TLP Pro 725T	7" Tabletop TouchLink Pro Touchpanel
TLS 1025M	10" Wall Mount TouchLink Scheduling Panel
IPCP Pro 250 xi	IPCP Pro xi Control Processor
Cable Cubby 1202	Cable Access Enclosure for AV Connectivity and AC Power
Global Configurator Professional	Powerful Configuration Software for AV Control Systems
GUI Designer	Free Design Software for User Interfaces
GlobalViewer Enterprise	Server-Based AV Resource Management Software
Room Agent	Room Booking Software for Extron Room Scheduling

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