

Extron NAV & AV Switching Systems Help Students Collaborate and Connect at the University of Manchester

“We can send a source from any room to any other room in the complex; the NAV system turns the entire MECD complex into one enormous, flexible learning space.”

Trevor Byrne
Head of Media Services
University of Manchester

Challenges

The University of Manchester Engineering Campus Development – MECD in England provides expansive research, learning, and meeting spaces for more than 8,000 engineering and science students. Two new structures, the nine-story Building A and the five-story Building B, link to the existing four-story Oddfellows Hall. The three main room types encompass flexible Meet & Teach rooms, labs and workshops, and specialized learning spaces such as blended-use and divisible rooms.

The University required flexible AV switching systems with robust sound and intuitive control for hundreds of flexible teaching and learning spaces. The Oddfellows Hall required an upgrade to match the technologies in the new buildings. All rooms in the MECD needed to be linked together and the AV systems would also need to integrate with the university's resource management system, Extron's GlobalViewer® Enterprise – GVE.

Pure Audio Visual Ltd. – Pure AV located in Preston, England, worked closely with the university IT/AV team to design the AV systems. Then, they spearheaded integration of the full selection of products from Extron, including professional-grade AV matrix switchers, switchers, DSP audio and control systems, and a NAV Pro AV over IP system.



Meet & Teach rooms are designed to be flexible, supporting lecture or collaborative groups. In large and mid-sized rooms, an Extron XTP system or a scaling presentation switcher provides AV signal routing from connected and wireless sources to the multiple displays. Photographs provided by Pure Audio Visual Ltd.

Design Solution

MECD's new engineering campus buildings feature two-tiered lecture theatres, four teaching clusters, over 120 Meet & Teach rooms, an interconnected venue consisting of five large teaching areas, individual labs and workshops, divisible lecture theatres, and a unique blended lecture/dry lab theater. Meet & Teach rooms replaced traditional classrooms. The campus includes five buildings, the James Chadwick Building, the York Street Building, and the three linked buildings. The project added approximately 2,200 learning, meeting, and social spaces over a combined floor area of 861,113 square feet (80,000 square meters).

When deciding on the best space for a particular lesson, instructors can look up rooms by size and AV capabilities on the Room Catalogue website. It includes photographs of each room and any space configuration options, as well as details about the provided and auxiliary AV equipment and connectivity capabilities by room.

Large Meet & Teach rooms include a Panasonic® 10,000-lumen projector and a Sapphire® screen, one or more Kaptivo® Capture Boards, interactive whiteboards, and LG® videowalls. Panasonic



Using the Extron TouchLink Pro touchpanel at the AV-enabled lectern, the instructor can switch sources to present the same content on all displays, enable each group to control their local display, or share content sourced from a workstation or another room.

displays on walls and carts augment visibility in the medium and large spaces, with the portable displays connected over HDMI. Room sources can incorporate combinations of one or more computers, a document camera, PTZ and network cameras, multiple microphones, and AV connectivity for wired and wireless devices. These and the mid-sized rooms provide an XTP® system or a fixed-configuration AV switching system from Extron, with a right-sized switcher or matrix



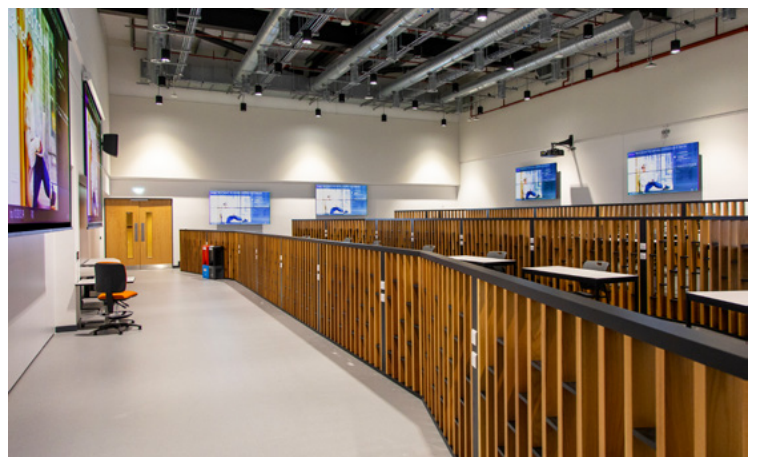
The small Meet & Teach rooms provide at least one display and an AV system based on an Extron SW HD 4K PLUS 4K/60 HDMI switcher. Intuitive AV system control is provided by an Extron TouchLink Pro touchpanel or Network Button Panel.

switcher, depending on room size and available resources. The in-room sound systems are based on Extron ProDSP™ processors such as the DMP 128 Plus audio processor with AEC, VoIP, and Dante® to manage mixing of program audio and microphone feeds.

For AV system control, each room is outfitted with an Extron IP Link® Pro control processor that works in conjunction with NBP 106 D Network Button Panels and TouchLink® Pro touchpanels to provide intuitive control for all system functions.

NAV Pro AVoIP System Links Campus Rooms and Buildings

To link each MECD room to the rest of the spaces on campus, Pure AV integrated an Extron NAV® Pro AV over IP system. At the time of installation, this was the largest Extron NAV deployment for higher education in the UK. While a variety of Extron products and systems are deployed across the University of Manchester, the MECD installation is their first use of a NAV system. The AVoIP system includes 186 endpoints, enabling content to be shared among any number of destinations. This is true even when one or more of the divisible spaces are reconfigured.



Blended Theater 1 is divisible, with a single XTP II CrossPoint 3200 modular matrix switcher providing AV signal routing for each space configuration.

The Pure AV design and commissioning teams worked closely with MECD's IT/AV infrastructure team and Extron engineers to evaluate, on-site test, and then demonstrate a full range of network switches. The objective was to mutually agree on which switch worked best with the NAV encoders and decoders. Since the vast majority of network switches tested well with the NAV system, this allowed the media services team to select the switches based on the feature set and cost.



On the lecture side of Blended Theater 2, each of the seven student workstations is associated with a 2x2 videowall to augment visibility and enhance collaboration.

The NAVigator System Manager enabled quick, intuitive configuration and control of the NAV encoders and scaling decoders over the MECD data network. It integrated with GVE, tying together the campus spaces. GVE and the NAV Pro AVoIP system combined to provide a secure platform that enables device connectivity, status, and control from the intuitive webpages within this resource management software. Also, alerts were set up within GVE to notify the support team of device connection status changes. This fusion of NAVigator and GVE facilitated remote system monitoring and control of the NAV Pro AVoIP encoders and decoders and the rooms throughout the MECD.

Results

Advanced supply chain planning in anticipation of Brexit and close adherence to stepped-up health and safety practices allowed Pure AV to work throughout most of the Covid-19 pandemic. Installation and commissioning were performed by zone and from the top level down in each building. This meant the integrator worked in parallel with the general contractor and the related construction trades, at times working shoulder to shoulder. Each zone was completed, commissioned, and signed off in accordance with the contractor's



Blended Theater 2 includes the Dry Teaching Lab, enabling students to move freely between theoretical instruction and application of that knowledge to focus understanding and develop practical skills.



Student spaces provide access to the same resources as classrooms. An Extron MediaLink controller and a network button panel enable source selection and local display control.

BIM360 process prior to submission to the university administration for client sign-off.

The Extron AV switching, distribution, and control systems, linked by the NAV Pro AVoIP system, offered the flexibility, performance, and scalability that the university required for reliable delivery to and from each connected room on campus. Designed in partnership between Pure AV and the university's technical and academic teams, MECD continues to meet and even exceeds student, staff, and administrative expectations.

"MECD affords an exciting new environment for the delivery of interdisciplinary research, teaching, and impact across engineering," says Professor Martin Schröder, Vice President and Dean of the Faculty of Science and Engineering at the University of Manchester. "We have created an inspiring, highly flexible first-class teaching and research environment that transforms the way in which the University educates engineers and material scientists for the future."

Blended Learning video:

<https://www.mecd.manchester.ac.uk/#>

Extron Equipment - Partial List

Model	Description
NAV E 101	1G Pro AV over IP Encoder - HDMI
NAV SD 101	1G Pro AV over IP Scaling Decoder - HDMI
NAVigator	Pro AV over IP System Manager
XTP II CrossPoint 3200	Modular Digital Matrix Switcher from 4x4 to 32x32
XTP II CP 4i HD 4K PLUS	Four Input Board - 4K/60 HDMI with Stereo Audio
XTP II CP 4o HD 4K PLUS	Four Output Board - 4K/60 HDMI with Stereo Audio
XTP CP 4i 12G-SDI	Four Input Board - 12G-SDI with SDI and HDMI Local Outputs
XTP CP 4i 4K	Four Input Board - XTP 4K with IR/RS-232 Insertion - 26W Remote Power Capable
XTP CP 4o 4K	Four Output Board - XTP 4K with IR/RS-232 Insertion - 26W Remote Power Capable
XTP SR HD 4K	HDMI Scaling Receiver
DXP 44 HD 4K PLUS	4x4 HDMI 4K Matrix Switcher
IN1806	Six Input 4K/60 Seamless Presentation Switcher
IN1608 xi	Eight Input HDCP-Compliant Scaling Presentation Switcher with DTP Extension
SW2 HD 4K PLUS	Two Input 4K/60 HDMI Switcher with Ethernet Monitoring and Control
DSC HD-HD 4K Plus A	HDMI to HDMI 4K/60 Scaler with Audio Embedding and De Embedding
DTP HD DA4 4K 230	HDMI to Four Output DTP Distribution Amplifier - 230 feet (70 m)
DTP HD DA8 4K 230	HDMI to Eight Output DTP Distribution Amplifier - 230 feet (70 m)
DTP T HD2 4K 230	DTP Transmitter for HDMI with Input Loop-Through
DMP 128 Plus AT	12x8 ProDSP Digital Matrix Processor with Dante
DMP 64 Plus	6x4 ProDSP Digital Matrix Processor
XPA U 358	Eight Channel Amplifier, 35 watts at 8 or 4 ohms
IPCP Pro 360Q xi	IPCP Pro xi Quad Core Control Processor
IPCP Pro 255Q xi	IPCP Pro xi Quad Core Control Processor
TLP Pro 1520TG	15" Tabletop TouchLink Pro Touchpanel
TLP Pro 1025M	10" Wall Mount TouchLink Pro Touchpanel
NBP 100	Network Button Panel with 6 Buttons - US 2-Gang
MLC Plus 100 AAP	MediaLink® Plus Controllers with AAP™ Opening
GlobalViewer® Enterprise	AV Resource Management Software

Extron

www.extron.com/education