



SLU Enhances Veterinary Medicine Education Using Extron XTP and DTP Systems with TouchLink Control

“We selected Extron for their fast and friendly technical support and a great experience overall with Extron products on previous projects.”

Mats Olsson
Vertical Business Development
ATEA

The Swedish University of Agricultural Sciences - SLU offers educational programs in agricultural-related subjects, one being veterinary medicine. In 2014, the university established the Centre for Veterinary Medicine and Animal Science - VHC, which is dedicated to the popular veterinary medicine and veterinary nursing programs. The VHC is a 54,000 square meter facility, with the southern section housing the University Animal Hospital. The university wanted to equip rooms at the VHC with highly flexible and versatile AV systems that would accommodate the various purposes that the rooms serve.

Among the essential AV capabilities are support for a range of sources, AV routing and distribution across multiple rooms, audio DSP processing and sound reinforcement, as well as intuitive AV system control. The university worked with AV integrator ATEA to deploy systems that incorporate a powerful combination of Extron products including XTP Systems®, DTP® twisted pair extenders, FOX fiber optic distribution amplifiers and extenders, audio digital signal processors, amplifiers, TouchLink® control systems, and GlobalViewer® Enterprise AV resource management. "We selected Extron for their fast and friendly technical support and a great experience overall with Extron products on previous projects," says Mats Olsson, Vertical Business Development for ATEA.

AV Requirements and Challenges

The university wanted to install AV equipment in nearly 100 rooms at the VHC. This included computer labs, diagnostic imaging and operating rooms, and most notably, auditoriums, meeting rooms, amphitheatres where students are instructed on various operating procedures, and dissection



Extron Electronics
INTERFACING, SWITCHING AND CONTROL



The XTP System provides complete flexibility for AV switching and distribution to the amphitheater's main display, a confidence display, as well as to systems in other teaching spaces.

rooms. One of the key requirements was that AV signals needed to be shared between an amphitheater and eight dissection rooms, allowing students in the dissection rooms to complete exercises that the instructor in the amphitheater teaches in real-time. AV systems were also to support multiple source types and, in several rooms, integrate with videoconferencing equipment. In addition, the university wanted the audio system in each room to deliver quality audio reproduction.

An equipment room near the amphitheater provides a large, dedicated space for housing AV equipment for the amphitheater and dissection rooms and long cable runs are necessary to reach sources and displays in the amphitheater as well as displays in the dissection rooms.

Seamless Integration of XTP and DTP Twisted Pair AV Distribution Systems

ATEA selected Extron XTP and DTP products to provide video distribution for the meeting rooms, auditoriums, amphitheaters, and dissection rooms. AV sources often include document cameras, laptops, resident PCs, as well as PTZ cameras. In meeting room locations, AV sources are switched and extended to the room's flat-panel display via an Extron DTP T USW 233 three input switcher with integrated DTP transmitter, and a DTP HDMI 4K 230 Rx receiver. The DTP T USW 233 supports digital and analog sources, and works with the receiver to extend AV and control signals up to 230 feet (70 meters) over a single CATx cable. "The auto-switching capability of the DTP T USW 233 makes the product an ideal solution to handle three inputs," says Mats Olsson. "It works great in the smaller rooms."

Lecture halls at the VHC use a combination of DTP HDMI and DVI transmitters and receivers for convenient signal extension and format conversion throughout the AV system. These rooms also use DTP T USW 233 units for local source switching at the instructor's table. Signals from the DTP receivers feed into a DXP HDMI Series 8x8 or 8x4 matrix switcher in an equipment closet, which also integrates with the videoconferencing system in lecture halls that have this capability.

Instructors use the amphitheater to teach medical procedures to students present within the room, as well as to those practicing the



A TLP 710CV touchpanel in the auditorium allows instructors to quickly and easily operate the AV system, including available videoconferencing functions, from the instructional table.

same exercises in each of the dissection rooms. To facilitate this instruction, an XTP System is used to distribute audio and video in the amphitheater. The XTP System consists of an XTP CrossPoint 1600 modular 16x16 matrix switcher in a central equipment room and several XTP transmitters and receivers in the amphitheater. Each XTP endpoint connects to the XTP matrix switcher over one twisted pair cable to carry audio and high resolution video. Additionally, the XTP CrossPoint 1600 is used to send RS-232 signals from the control system to the receivers over this cable for controlling the display devices. The ability to consolidate multiple signals for transport over a single cable greatly streamlined the installation.

To support very long distance transmission and distribution between the central XTP matrix switcher and the dissection rooms, and to ensure optimal signal integrity, ATEA installed Extron fiber optic products. A FOXBOX Tx HDMI fiber optic transmitter and FOX DA8 Plus eight output fiber optic distribution amplifier in the equipment room extend and distribute AV over fiber optic cabling to FOXBOX Rx HDMI fiber optic receivers in the dissection rooms. In addition to viewing presentations from the amphitheater, dissection room AV systems also support a local resident PC or laptop. These sources are switched locally to the display using Extron SW4 HDMI four input switchers.

The central AV equipment room houses the XTP CrossPoint matrix switcher, as well as additional AV equipment that enables technicians to monitor the amphitheater AV system and assist the instructor if necessary. Extron MGP 464 DI multi-window processors allow for viewing up to four windows of AV content from the amphitheater, a laptop, or a PC.

High Performance Audio Systems with Extron Audio DSP

The audio systems support program audio as well as speech in the lecture halls and amphitheater using ceiling and wireless microphones. ATEA selected a range of Extron 4x4, 6x4, and 12x8 audio digital signal processors to manage source audio, including the DMP 64 for meeting rooms, the DMP 128 for the amphitheater and lecture halls, and the DMP 44 LC for dissection rooms. Audio signals from the DMP 128

in the amphitheater are routed to the central XTP matrix switcher, enabling the room's audio to be heard in the AV equipment room, as well as distributed to the local systems in the dissection rooms. "The Extron digital audio signal processors are easy to configure and fine-tune to maximize the performance of each audio system," says Mats Olsson. The DMP units provide key audio processing functions such as mixing and routing, microphone automixing, dynamics processing, as well as equalization. Additionally, ATEA used Extron HAE 100 HDMI audio de-embedder units to integrate HDMI audio from the switchers and matrix switchers into local audio systems.

To amplify the audio content, ATEA chose ENERGY STAR® qualified Extron XPA 1002 and XPA 2004 audio power amplifiers. The XPA 1002 two channel power amplifier provides 100 watts output per channel into 4 ohms and the XPA 2004 four channel amplifier delivers 200 watts output per channel into 4 ohms. These energy efficient amplifiers deliver ample power for the speaker zones in each room and are housed in compact 1U enclosures that save valuable rack space.

TouchLink Control and Effective AV Resource Management

Extron TouchLink control systems and MediaLink® controllers simplify AV system control throughout the VHC. Users operate the meeting room systems using Extron TLP 350CV 3.5" Cable Cubby® TouchLink Touchpanel which work in concert with Extron IPL T SF1244 control processors. For the auditoriums, ATEA paired Extron TLP 710CV 7" Cable Cubby TouchLink Touchpanels with Extron IPL 250 and IPCP 505 control processors. These touchpanels provide intuitive controls for source selection, selection of videoconferencing functions, display or projector selection, in-room light adjustment, audio level adjustment, and the ability power the display devices on or off.

"Teachers appreciate the convenience of the Cable Cubby enclosures with integrated TouchLink touchpanel when it comes to using the AV technology in their classrooms," says Mats Olsson. "These products enable teachers to operate the AV system and have convenient access to AV connections and power for laptops or other devices, all at the instructional table." Technicians in the AV equipment room are able to access system controls from a TLP 1000TV 10" Tabletop TouchLink Touchpanel, while the dissection rooms feature MLC 104 IP Plus MediaLink controllers that provide simple-to-use button control interfaces for the AV systems.

Extron GlobalViewer Enterprise, a server-based AV resource management application, enables personnel to provide remote helpdesk support for the VHC. They can use the application to remotely control, manage, and monitor the AV equipment over the network. For



The AV equipment room is used for monitoring and supporting the amphitheater AV system as well as content distribution to the dissection rooms.

example, the university takes advantage of the application's capabilities by monitoring lamp hours for projectors throughout the facility.

Results

For the Swedish University of Agricultural Sciences, the installed systems that were developed around Extron XTP, DTP, fiber, control, and audio products deliver the broad AV capabilities, flexibility, and reliability necessary in the VHC. Each auditorium and meeting room uses Extron equipment in a similar way, which helps users experience a common AV system setup and control interface as they move from room to room. As a result, users are able to begin their lectures or meetings quicker and conduct them with greater ease. Overall, Extron AV systems are effectively facilitating the goals for veterinary medicine education at the Swedish University of Agricultural Sciences.

WORLDWIDE SALES OFFICES

Anaheim • Raleigh • Silicon Valley • Dallas • New York • Washington, DC • Toronto • Mexico City • Paris • London • Frankfurt
Stockholm • Amersfoort • Moscow • Dubai • Johannesburg • Tel Aviv • Sydney • Melbourne • New Delhi • Bangalore
Singapore • Seoul • Shanghai • Beijing • Hong Kong • Tokyo

www.extron.com