



## Extron XTP Systems and Pro Series Control Bring Advanced AV to Historic Auditorium

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**Giuliano Virgiliani**  
Multimedia Sector Technical Manager  
Ca' Foscari University

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The Ca' Foscari University of Venice was established in 1868 as the first business school in Italy, and became a premier State University in 1935. Today, approximately 20,000 students are enrolled in degreed programs covering multiple disciplines of science, humanities, economics, foreign languages, and literature. Along with academics, the university sponsors a wide variety of prestigious business and community activities. A popular venue for these events is the Ca' Dolfin palace, a 16th century structure located at the widest bend of the Grand Canal in the old town center.

In 2012, the university launched a three-year project to restore the palace to its former grandeur and upgrade the building's AV systems. The university worked with noted integrator 3P Technologies to deploy systems that incorporate a powerful combination of Extron products. The final year of the project called for the installation of Extron XTP Systems® and Pro Series control products in the palace's Silvio Trentin Auditorium.

“The diverse activities and the evolving technical requirements needed to successfully carry out events made it necessary to equip the Ca' Dolfin auditorium with high-tech, quality media systems,” says Giuliano Virgiliani, Multimedia Sector Technical Manager at Ca' Foscari University. “The flexibility of XTP Systems has allowed us to build a customized system with support for future expansion.”

### AV Requirements and Challenges

The Ca' Dolfin palace was built in the early 1500s over foundations dating back to the ninth century. Drilling or marring of the surfaces was strictly prohibited under regional B.A.P. Board for



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Cultural Heritage and Environmental Conservation regulations for the city of Venice and the surrounding lagoon. This constraint applied to both the palace's exterior and interior. The 60-foot (18-meter) by 36-foot (11-meter) Silvio Trentin Auditorium features beautiful gilded ceilings, frescoed walls, and tiled flooring. Two magnificent Murano chandeliers and ten mirrors in frescoed framework dating back to the 18th century decorate the room. At the front of the auditorium is an elegant conference table, which is called the head table. The table and precious antiquities were to be protected while remaining in place during the AV system upgrade.

To comply with B.A.P. regulations and allow visitors to enjoy the room's architectural beauty and exceptional acoustics without technological distractions, the projection system, speakers, PTZ cameras, WiFi access points, microphone stations, and mounting systems needed to be carefully removed. The scope of work included removal of the AV system ducts and most of the external raceways for the bulky coaxial cabling as well. New AV equipment had to be hidden or durable enough for repeated removal and reinstallation with minimum effort.

The unique structural features, irreplaceable artwork, and required AV system capabilities necessitated careful product selection. 3P Technologies created a digital design with a twisted pair cable infrastructure and Extron solutions to address previous system limitations, as well as add videoconferencing, streaming, archiving, and remote AV system operations.

### Full Customization with XTP Systems

The system designers at the university and 3P Technologies chose the Extron XTP CrossPoint 1600 16x16 modular matrix switcher to enable switching and distribution of HDMI, VGA, and 3G-SDI video source signals, plus stereo audio and bidirectional control. It is configured as 8x8 with a mix of XTP® HDMI and twisted pair input and output boards for local and remote signal distribution. This configuration gave an optimized approach that supported the widest possible variety of signal types. As an example, the XTP CP 4i twisted pair input board supports signal extension from remote sources while the XTP CP 4o HDMI output board feeds content to four local HDMI devices, including an HDD recorder, a videoconferencing codec, a DVD recorder, and an Extron SME 100 HD H.264 Streaming Media Encoder. For 3G-SDI, HD-SDI, or SDI sources, Extron DSC 3G-HD A and DSC HD-3G A units were installed to provide easy signal conversion to HDMI for extension over the XTP System. "XTP allowed us to customize the matrix boards and endpoints to accommodate various signal types and formats, saving us the expense of extra equipment," says Virgiliani.

Each XTP endpoint connects to the XTP CrossPoint® matrix switcher using one twisted pair cable to carry high resolution video, audio, and RS-232. Remote power from the matrix to each endpoint further streamlined the installation. An XTP T HDMI transmitter installed under each of the head table's three Extron Hideaway HSA 400 enclosures provides signal extension from connected portable sources. The university decided to keep existing Extron Hideaway enclosures that

were first installed in 1993. The smooth pneumatic movement enabled nearly silent opening and closing during presentations and the units had held up well over the years. These enclosures already offered VGA, analog audio connectivity, and AC power; the only required change was to add an HDMI input plate to each unit.

The application includes both Extron XTP R HDMI receivers and XTP SR HDMI scaling receivers. Scaling receivers support the projection system and downscale images for the control room workstation displays. Another XTP SR HDMI connected to an Extron HDMI DA4 distribution amplifier provides content at the appropriate resolution for the displays at the head table. XTP transmitters and receivers also provide AV and control signal extension to two ground-floor lecture rooms used for overflow. The XTP CrossPoint matrix switcher's capability to power the extenders over the same cable proved essential. "The XTP CrossPoint matrix switcher has been invaluable in solving installation and cabling problems, while also offering us the most appropriate flexibility, transmission capabilities, and expandability for Ca' Foscari University," says Alessandro Volpato, Project Manager at 3P Technologies.

Two mobile equipment racks located in an antechamber contain the XTP CrossPoint matrix switcher and the shared resources, as well as the sound, control, and other systems.

### Multiple Audio Sources: One DMP 128

The AV system's capability to support an extensive variety of sources required a solution for audio mixing and digital signal processing. An Extron DMP 128 12x8 ProDSP™ Digital Signal Processor automatically mixes program audio and feeds from active wired and wireless microphones. Two Extron XPA 4002 amplifiers provide sound reinforcement and optimization within the auditorium, and an XPA 1002 Plus two-channel model supports each overflow room. The XPA Series amplifiers provide ample power for the speaker zones, generate little heat, and are ENERGY STAR® qualified for energy efficiency. They offered the required features and capabilities for the application, while reducing the total operating cost for the university.



Extron Hideaway HSA 400 units offer AV connectivity and power at the table.

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The use of mobile racks accommodated cultural heritage constraints.

The rack-mounted amplifiers distribute audio signals to Extron SM 26 SpeedMount® two way surface mount speakers. The speaker's patented mounting system was the perfect solution to fulfil the university's requirement for easy, quick, and repeated removal and reinstallation of visible AV equipment within the auditorium.

### Extron for Flexible Control

For system control at the head table, an Extron CTR 8 converts contact closure signals from the AAP switch installed in each HSA 400 enclosure into Extron SIS™ Simple Instruction Set serial commands. Six of the converter's eight inputs support the three enclosures, leaving two inputs in reserve. The XTP T HDMI transmitters installed beneath the table extend bidirectional RS-232 control along with the AV signals to the XTP CrossPoint matrix switcher. These signals interface with the control processor. The processor then issues commands through the system to trigger contact closures on the XTP receiver mounted with the projector, enabling the 149-foot (45.4-meter) pantograph screen to be lowered and raised from the head table or a remote location.

The antechamber with the equipment racks also serves as the master control room for the auditorium. A technician can monitor and remotely operate the AV system using the workstation's Extron TLP Pro 1020T TouchLink® Pro tabletop touchpanel. The TouchLink touchpanel's customized user interface and 10" screen size provide full functionality using just a few menu pages, simplifying control for the technical staff. Operations include complete presentation management in the auditorium and the overflow rooms, as well as control of the videoconferencing, streaming, and archival systems.

The TLP Pro 1020T works in conjunction with Extron Pro Series control processors, and 3P Technologies chose the Extron IPCP Pro 350, which is well-suited for this mid-sized application. The IPCP Pro Series



Extron Pro Series control products enable easy remote AV system operation.

features advanced security standards plus Gigabit Ethernet, and is more powerful than the previous processor series. The university added Extron LinkLicense®, an option for IPCP Pro control processors that allows authorized users to control the AV system from a personal device. This established a standardized and consistent support approach for BYOD usage within Ca' Dolfin. An economical feature of LinkLicense is that the university only had to purchase one license for the installation, rather than one for each technician.

For portable system control, the Extron Control app was downloaded to the support staff's Apple® iPads. The app automatically synced with the control system, and made setup easy. The interface mirrors that of the touchpanel, allowing easy monitoring, control, and troubleshooting of the installation from a mobile location.

### Landmark Success

The extensive restoration work involved the structural, artistic, and technological domains of the Silvio Trentin Auditorium. The timeline to select, purchase, and install the AV equipment was very short, allowing only two months to commission the application. This turned out to be a non-issue. According to the integrator, the XTP Systems Configuration Software simplified the entire system installation and commissioning process. 3P Technologies easily had the auditorium's AV system up and running in time to support the grand reopening ceremony of the Ca' Dolfin palace.

The university technicians and staff quickly learned how to use Extron's Pro Series control products and the app to operate the AV system remotely as well as from within the room. Also, the new installation complied with all B.A.P regulations, qualifying the building as a historic structure. The digital AV system design using Extron solutions succeeded in bringing 21st century image quality, sound clarity, and streamlined control to this 16th century venue at Ca' Foscari University.

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