



## Traditional Classroom that Supports Distance Learning with Incite



### OPPORTUNITY

Deploying technology that brings traditional and distance learning together, in an affordable way, can make any classroom a distance learning classroom. Having more distance learning classrooms opens up flexibility in scheduling, allows instructors to remain in classrooms they are comfortable with, and expands the attendance of any class.

To do this well, while remaining budget conscious, there are some important considerations. It is important to create a consistent in-class and remote learning experience to ensure the remote students aren't missing any class content. The technology needs to be easy to use - so the instructor can focus on teaching without being frustrated by technology issues. In addition, the audio should allow for two independent mix buses - this allows for one mix for in-class and a separate mix for input into the distance learning system.



### SOLUTION

HARMAN Professional Solutions understands the challenges inside and outside the classroom. Years of audiovisual experience, from the top industry brands, went into the design of the Incite Digital Presentation System. The Incite combines AMX expertise in switching, scaling, distance transport, device control with BSS digital signal processing, dbx advanced feedback suppression, and Crown DriveCore amplification to deliver an unmatched solution. However, it doesn't stop there. Incite also features "live production" style transitions and windowing capabilities to combine two signals into a single output path. This allows the remote learner to see the instructor along with the content the instructor is presenting.

The sample solution shown in this application brief utilizes the Incite as an in-class video distribution system that takes in source content from up to eight sources at resolutions up to 4K60 4:4:4. The Incite can route a single source, or combine two of the eight sources into picture-in-picture, top-bottom or side-by-side configurations. The three mirrored outputs (2 HDMI and 1 DXLite) are ideal for this solution. The DXLite output allows for a run of up to 70 meters, which is perfect for

a DXLite receiver placed by a ceiling projector or in room display. The two HDMI outputs can be used for a confidence monitor located at the podium, and to feed the distance learning system. With 4 HDMI, 2 VGA and 2 DXLite inputs the system can content to a wide variety of sources. This example shows an in-podium computer, document camera, Blu-ray player, and digital set-top box in addition to an HDBaseT camera to capture the instructor image for distance learners, and a laptop connection located at a student presenter pod. The professional HDBaseT camera can be sent directly to the DXLite input on the Incite, no transmitter or receiver required. The student pod laptop signal is transmitted over HDBaseT via a DXLite transmitter then received directly into the Incite over a DXLite input.

Realizing that the audio for the students in the room and outside the room should be processed very differently, the Incite provides two independently configurable balanced pre-amp audio outputs as embedded audio paths on each of the 3 mirrored digital video outputs. So, the first mix can be sent in the classroom, and the second to remote students. Each mix bus provides a complete fixed DSP chain, which is fully adjustable and includes independent microphone mixes per path, automatic mic ducking, compression limiting, gating, 10-band parametric EQ from BSS and Advanced Feedback Suppression from dbx. The Incite accepts microphone level inputs, and in this scenario is accepting a microphone input from an AKG WMS470 wireless presenter microphone.

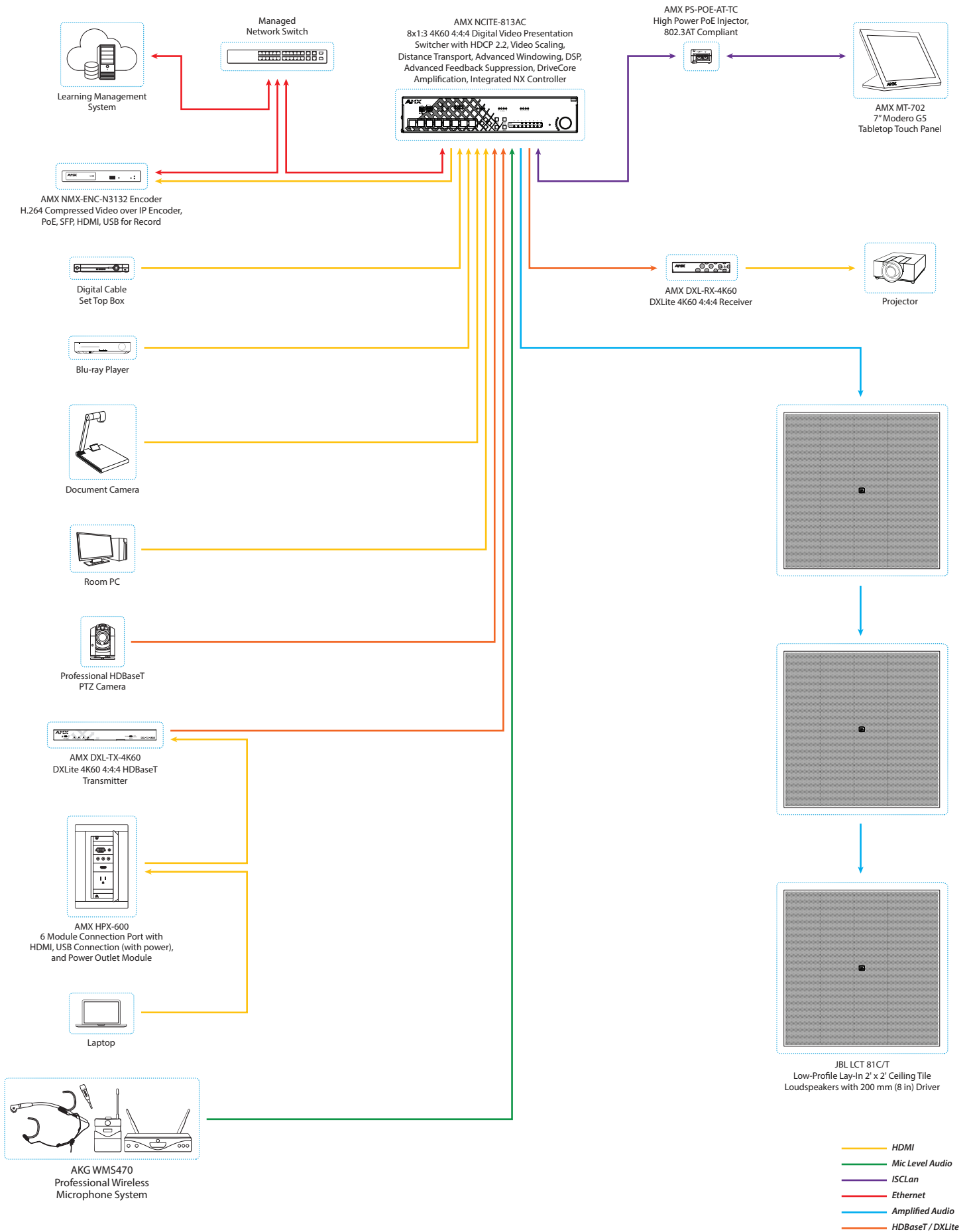
To complete the offering, the solution presented here includes a HydraPort connectivity at a student sharing table for easy sharing from student or visiting devices such as laptops. The laptop video is transmitted over standard category cable with a DXLite transmitter to the DXLite input on the Incite. The HydraPort also includes charging ports for power and USB.

With audio processing and amplification built into the Incite, amplified audio can be delivered directly to the JBL 81C/T low-profile Lay-In 2' x 2' ceiling tile loudspeaker. The LCT has a 200 mm (8 in) driver, and lays into a 2' x 2' US-style suspended grid ceiling without any cutting of ceiling tiles. For classrooms that do not include this size suspended grid ceiling there is a full line of JBL Control Contractor Series speakers available to accommodate any classroom size or shape including surface-mount (on-wall), in-ceiling, and in-wall models. Students will not miss a word with JBL's legendary audio designed for superior intelligibility and coverage.

For simplified usability a 7" AMX Modero G5 touch panel is placed at the podium and can be programmed to switch inputs with production style transitions, select the output configuration (a single source image or two sources in a top-bottom, picture-in-picture, or side-by-side arrangement). Additionally, the Incite includes an embedded central controller that can be programmed for full control of all the in-room devices including speaker volume, projector on/off, lights, shades and much more. For even greater simplification macros can be programmed so that a single command on the touch panel initiates an entire scenario. For example, "distance learning" could automatically turn on the camera to show the instructor, arrange the output in a top-bottom configuration, and more.

This is just a small sample of the audio, video and lighting solutions from HARMAN Professional. Contact a HARMAN representative today to learn more.

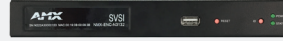
# DISTANCE LEARNING CLASSROOM WITH INCITE SYSTEM DIAGRAM





### AMX Incite All-in-One Presentation Switcher

This integrated presentation switcher provides video switching with transitions, BSS audio signal processing, Crown DriveCore amplification, and AMX NetLinx room control. In this application, Incite provides source audio and video switching, with seamless video transitions between sources. Incite also drives in-room audio, leveraging the built-in amplifier with HARMAN's proprietary DriveCore technology.



### AMX N3000 Series H.264 Video over IP

The AMX SVSI N3000 Series extends the reach of AMX SVSI Networked AV to the WAN for streaming, video to desktop, digital signage, set-top boxes, or mobile device applications. Utilizing H.264 compression technology, the N3000 Series delivers the highest quality HD video content at the lowest bandwidth for the most demanding application. Moving video to or from the cloud just became a lot easier.



### AMX Modero G5 Touch Panels

AMX Modero G5 is the face of the most secure AV control system. Beautiful, streamlined user interfaces that integrate all the functionality needed to control room technology including sources, devices, lighting, and more. Get complicated user interactions out of the way so business, learning and entertainment can get underway. Available in 20", 10" and 7" tablet and 10" and 7" wall mount.



### AKG WMS470 Professional Wireless Microphone System

The WMS470 professional analog wireless microphone system is the best choice for a cost-efficient, high-performance multichannel system. Up to 16 channels can be used simultaneously within the same frequency band. The pilot tone prevents the user from unexpected startup noise and it continuously sends transmitter data including low battery information to the receiver. A revolutionary power management allow up to 14 hours of operation with one AA-size lithium battery.



### JBL Professional LCT 81C/T Low-Profile Lay-In 2' x 2' Ceiling Tile Loudspeaker with 200 mm (8 in) Driver

LCT 81C/T is a full-range ceiling speaker designed to lay into a 2 ft x 2 ft US-style suspended grid ceiling, with no cutting of ceiling tiles required, making for an easy and cost-effective installation with a minimum of mess. The low profile depth of only 100 mm (4 in) allows the speaker to fit in locations where deeper loudspeakers do not. The very high sensitivity of 96 dB provides maximum sound level, even at low tap settings.



### AMX HydraPort Architectural Connectivity

HydraPort is the perfect solution for attractive, effective cable management. Accessible from all sides of the table, it has a very low-profile, flush-mounted design, and a much slimmer under-table depth than its competitors. Choose from three chassis sizes and an integrated touch panel model. You can customize your HydraPort with your choice of over 50 AV, power and control modules; most available in a retractable version, to create a connectivity solution perfect for any space.

