CRESTRON®
infocomm

MT14 – **Crestron New Technology Showcase**

Instructor: **Jonathan Garcia**

Mix. Match. Build.

DM Lite Transmitters

Simple, low-cost high-performance signal extension, auto switching

- 70m up to 1080p, 40m up to 4K
- 4K30, 4:4:4
- 4K60, 4:2:0

DM Lite Receivers

- Mix and match TX and RX pairs
- Or pair them with endpoints from HD-MD300-C-E and HD-MD-400-C-E

New life for the popular HD-MD400-C-E and HD-MD300-C-E

- HD-MD-300/400-C-E transmitter and receiver now sold separately
- Pair with any other DM Lite device
- Transmitter is 3-input auto-switcher
  - 2 x HDMI
  - 1 x VGA
- Receiver has it all!
  - HDMI auto switcher
  - 1080p scaler
  - Automatic display control
  - Web configuration interface

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HD-RX-4K-210-C-E

4K-scaling DM Lite receiver with 4K60 4:2:0 support

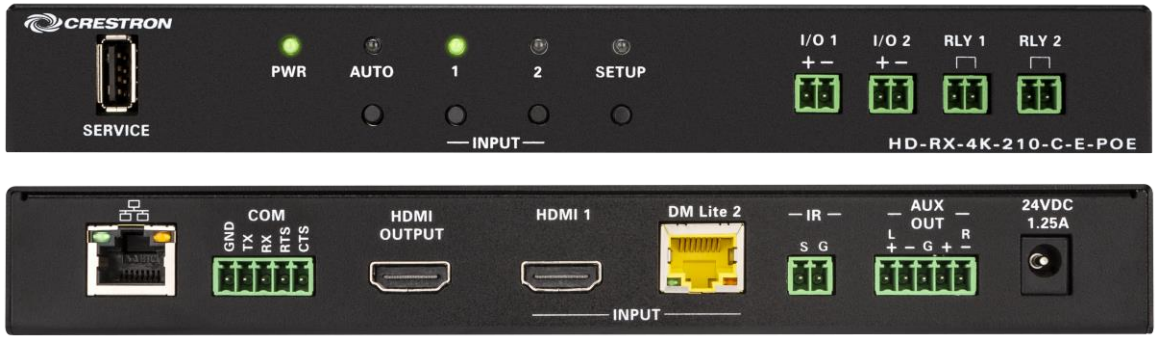
- Improved network connectivity
- Crestron XiO Cloud™ support
- Full CIP integration
- Interoperable with current and future DM Lite products

1 HDMI® and 1 DM Lite Inputs

Various control ports – COM, IR, Relay, I/O

Built-in scaler with ability to bypass when necessary

Supports .AV Framework™ (via VC-4 or MPC3)



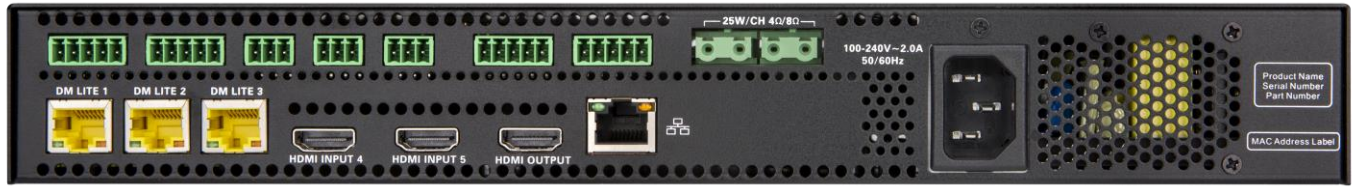
HD-RX-410-C-E - 4K Multi-format DM Lite Switching Receiver

New 4K Multi-format DM Lite Switching Receiver

- 2 HDMI® and 2 DM Lite Inputs
- Various control ports – COM, IR, Relay, I/O
- Built-in 4K scaler with ability to bypass when necessary
- Built-in stereo speaker output – 25W per channel
- -SW Option adds 4-Port Ethernet Switch with POE+ Ports (2)

CRESTRON

HD-RX-510-C-E - 4K Multi-format DM Lite Switching Receiver



New 4K Multi-format DM Lite Switching Receiver

- 3x DM Lite Inputs
  - Provides power to transmitter
- 2x HDMI Inputs
- HDMI output with 4K Scaler
- 2x Line Inputs
- 1x Mic Input
- Built-In 25W Amplifier

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HD-RX-510-C-E - 4K Multi-format DM Lite Switching Receiver

New 4K Multi-format DM Lite Switching Receiver

- Supports .AV Framework
- On-board Control Ports
  - IR, RS-232 & Relay ports
- -SW Option adds 4-Port Ethernet Switch with POE+ Ports (2)

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DM Lite vs DM

- DM Lite supports the following:
  - Pass-through CEC, COM, IR
  - Auto-routing (no programing needed)
- DM Lite is a separate product line and uses different technologies – cannot be mixed with DM

- DM supports the latest and greatest resolutions
- DM supports full 100m at all resolutions

DM Lite

DM

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Deploy. Configure. Repeat.

Control and Display

LAN

HDMI

HDMI

.AV Framework BUILT IN

CRESTRON

MPC3-101 / MPC3-102

3-Series® Media Presentation Controller 101

Wall-mounted, PoE powered 3-Series® control system

Automation control system and control panel in one

Features a modern appearance with customizable backlit capacitive buttons

Mounts in a single-gang U.S. electrical box

Fitted with Cresnet® communications, 1x IR, proximity sensor

MPC3-102 adds additional control ports

- 1x COM
- 2x Relay
- 2x Versiports

MPC3-302

3-Series Media Presentation Controller 302

Wall-mounted, PoE powered 3-Series control system

- Automation processor and control panel in one
- Features a modern appearance with customizable backlit capacitive buttons
- Mounts in a three-gang U.S. electrical box or tabletop console (sold separately)

Fitted with following control ports

- Ethernet
- Cresnet
- 1x IR
- 1x COM
- 2x Relay
- 2x Versiports
- Proximity sensor

Control, Display and Present

LAN

HDMI

AirMedia 2

HDMI

CAT5e

HDMI

AV Framework BUILT IN

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Crestron Virtual Control: Next Generation Systems

Crestron
VIRTUAL CONTROL

Crestron Virtual Control: Control System on a Server Specs

Runs on Linux® operating system via virtual or physical machine

- Deployed as a Linux server application into the customer's IT infrastructure (no different from installing any other web server)
- Automatically configure and update all rooms running single code base
- Inbound device connections, rather than outbound
- More scalable: less network traffic and overhead

Fully managed from Crestron XiO Cloud™ service

When to Use Crestron Virtual Control

Whenever a large number of identical systems is required

Centralizing control on the server

- Saves space in each room
- Simplifies and speeds installation
- Simplifies program deployment and maintenance

For example, a conference center often has multiples of a few room types

Crestron Virtual Control Pricing Model

Base License

VC-4-CORE

- 5 rooms included
- One program instance per room
- Unlimited connected devices per room
- Unlimited program library entries

Additional Rooms

VC-4-ROOM

- Require 1 license per additional room
- Can be purchased incrementally
- Volume discounts when 50+/100+ are purchased at the same time

Crestron Virtual Control: Server Requirements

Requires Ubuntu® operating system 16.04.3 LTS

Hardware requirements

Disk space: 1Tb

Specific hardware requirements are determined by the number of rooms deployed on the server

1 Gbps network interface

Crestron Virtual Server should be run on a dedicated server or virtualized environment

RAM Needed

	Average Number of Devices per Room																			
# of Rooms	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
50	4	4	8	8	8	16	16	16	16	16	32	32	32	32	32	32	32	32	32	32
100	4	8	16	16	16	32	32	32	32	32	32	64	64	64	64	64	64	64	64	64
200	8	16	32	32	32	64	64	64	64	64										
300	16	32	32	64	64	64														
400	16	32	64	64	64															
500	16	32	64	64																

CPU Cores Needed

	Average Number of Devices per Room																			
# of Rooms	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
50	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	8	8	8
100	4	4	4	4	4	4	4	4	8	8	8	8	8	8	8	8	8	8	16	16
200	4	4	4	4	8	8	8	8	8	16										
300	4	4	8	8	8	8														
400	4	4	8	8	16															
500	4	8	8	16																

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Crestron Virtual Control: Enterprise-Grade Security

All devices connect using authenticated, secure, and encrypted protocols

- 802.1x
- Active Directory® authentication

Data is secure in transit and at rest

- AES encryption ensures secure transmission
- PKI certificates authenticate devices
- TLS 1.2 secured control channel
- 1024-bit encryption at rest

Setup Options

Supports .AV Framework configuration-based systems (no programming)

Displays as switchers

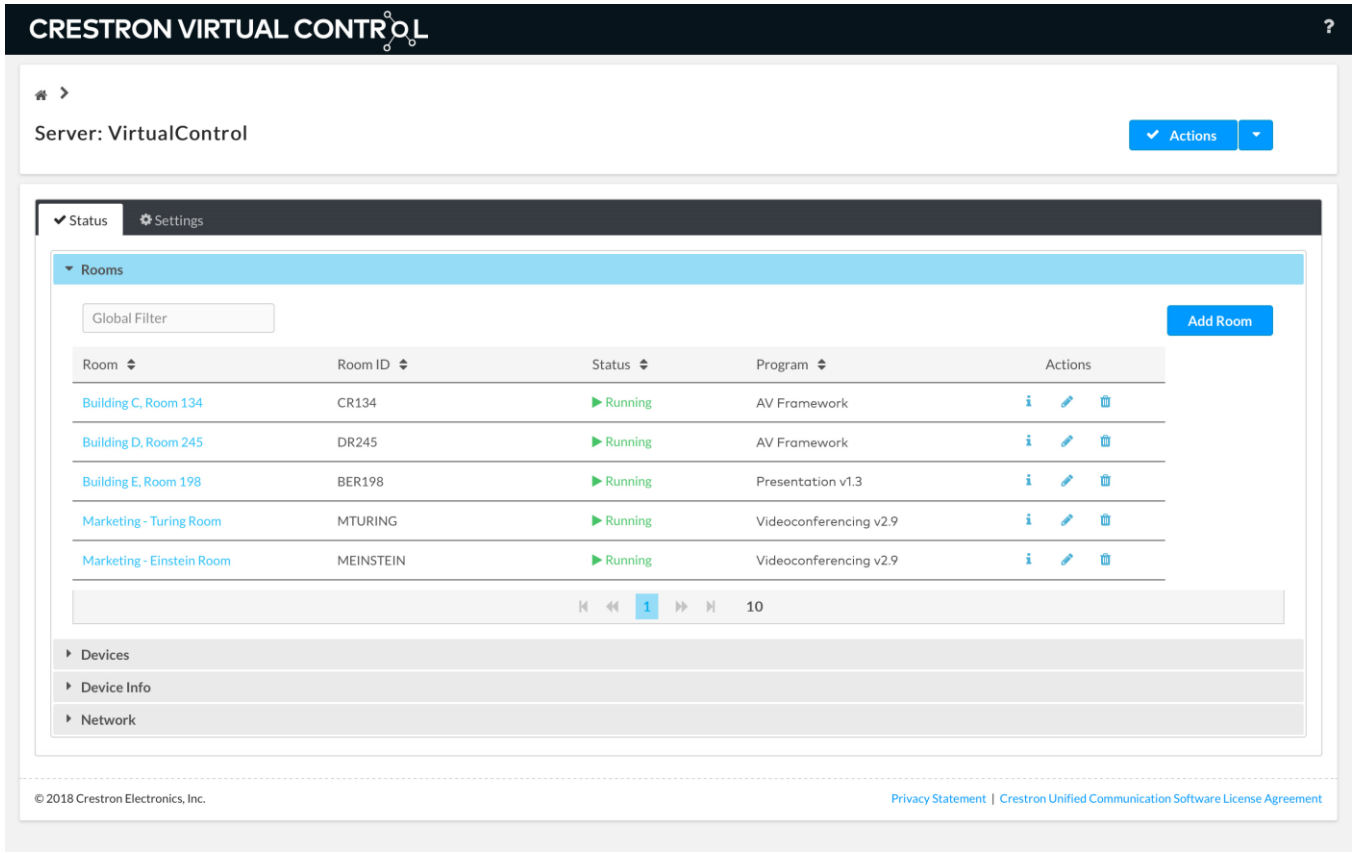
Crestron Certified Drivers

Custom programming available

Native C# (SIMPL#)

- Works with any version of Microsoft® Visual Studio® integrated development environment

RESTful-API for open development/integration with other applications



CEN-IO Devices

Available models

- CEN-IO-COM-102: 2 x RS-232/485
- CEN-IO-RY-104: 4 x Relays
- CEN-IO-IR-104: 4 x IR
- CEN-IO-DIGIN-104: 4 x Digital Input

Place IO ports all over the LAN

- PoE

Great combination with VC-4

- Provides security for non-secure devices!

Supports multiple control system connections – shareable across rooms

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Control Everything

LAN

COM

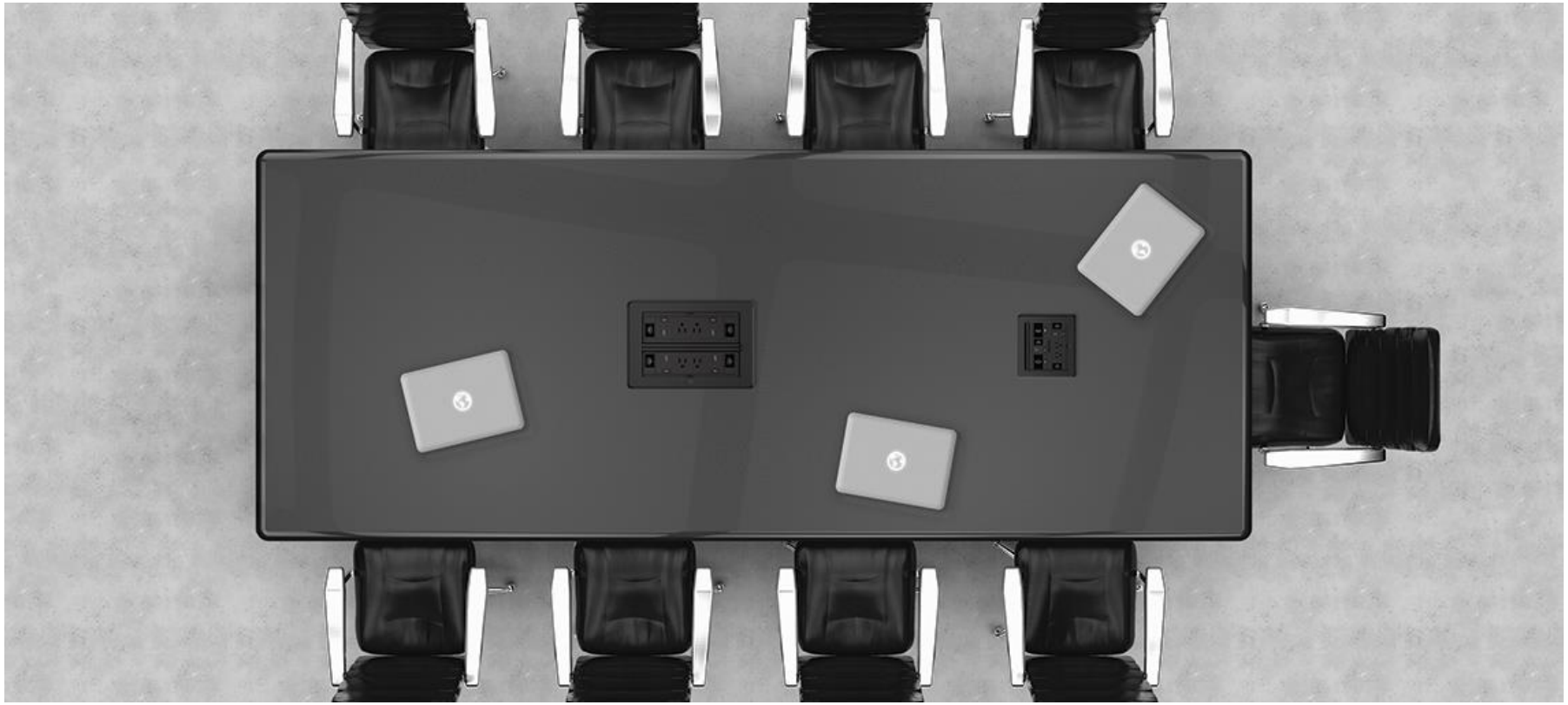
HDMI

HDMI

Fliptops. Reinvented.

Fliptops. Reinvented for the Modern Workplace

Revolutionize the presentation experience



Two versions: Active or Passive

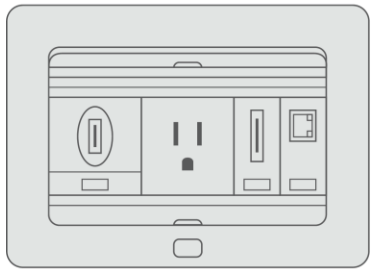
Active FlipTop

Supports USB-C™ charging modules, one-touch or vertical gravity retractors, and all active 4K connector plates. All labels are backlit.

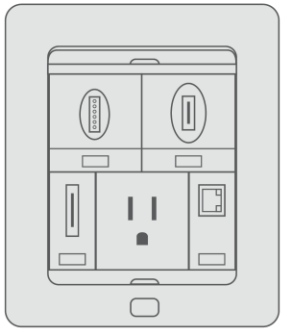
Passive FlipTop

Supports AC power, basic pass-through cables, flush-mount connectors in keystone plates, and vertical gravity retractors.

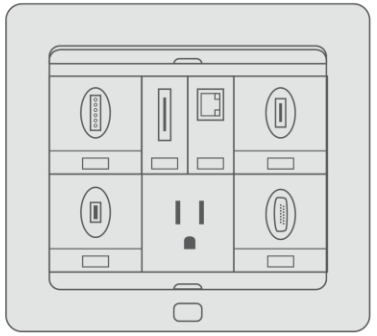
FT2 FlipTops come in a variety of sizes for any installation



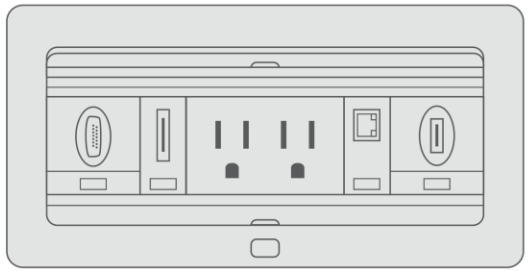
FT-202
(7” W x 3.25” D)



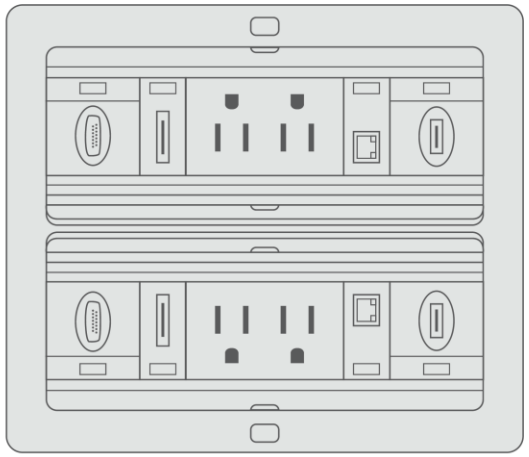
FT-500
(5.75” W x 5.75” D)



FT-700
(7.125” W x 5.75” D)



FT-1200
(10” W x 4” D)



FT-1400
(10” W x 6.75” D)

Choose the right cables and connections

From USB charging to HDMI®, DisplayPort™, and more, FT2 FlipTops have the connections you need

USB-A and USB-C Charging

Provides one USB Type-C charging port and one USB Type-A charging port

- Can be used simultaneously to quickly charge devices
- Active only
- Requires one slot (one per row)

US Power Modules

Provides one, two or three power outlets at the surface of the FlipTop

- Active and Passive
- Requires two, three, or four slots

International Power Modules

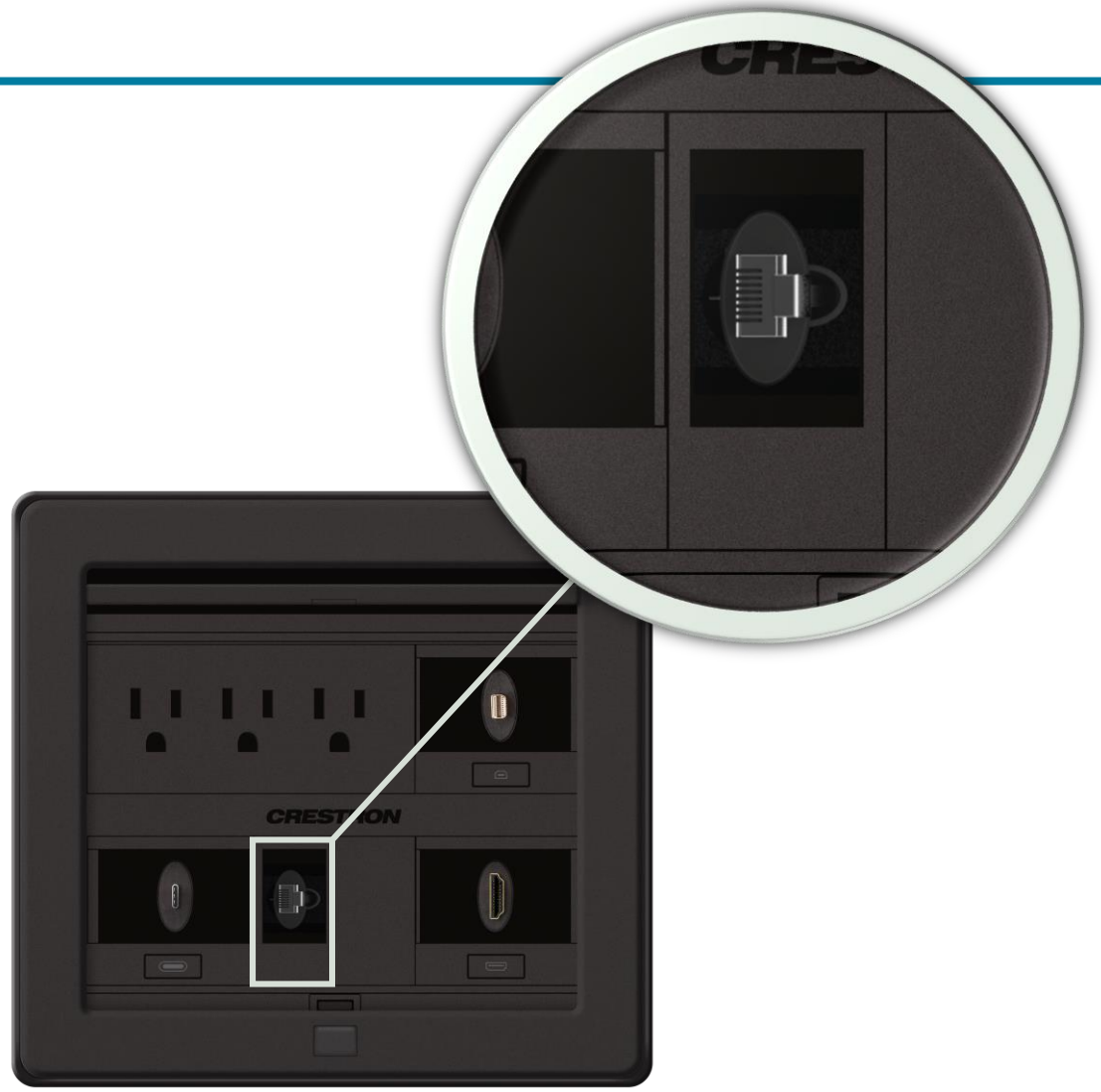
Provides one or two power outlets at the surface of the FlipTop

- Active and Passive
- Requires two, three, or four slots
- **Available for:** Australia /NZ/China, European Schuko, France/Belgium, Israel, Italy, Switzerland, UK, Universal

Pass-through Cables

High-performance, purpose-built interface cable

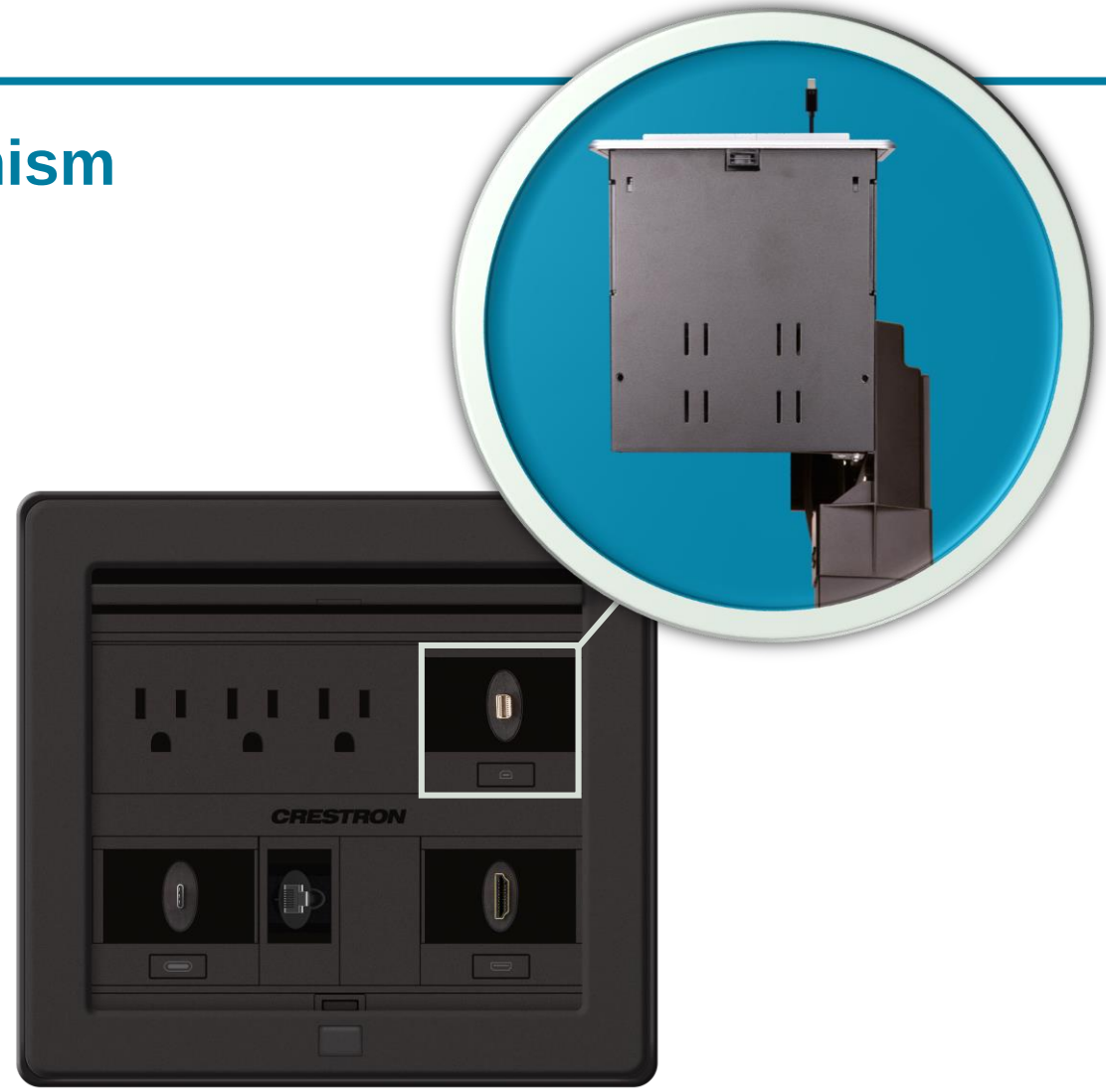
- Active and Passive
- One slot per cable
- **Options:** HDMI, CAT6, USB, 1/8” audio, VGA, USB-C to HDMI, DisplayPort, DisplayPort to HDMI, Mini DisplayPort to HDMI, Mini DisplayPort to DisplayPort



Gravity Retractors

Gravity-assisted track and pulley mechanism

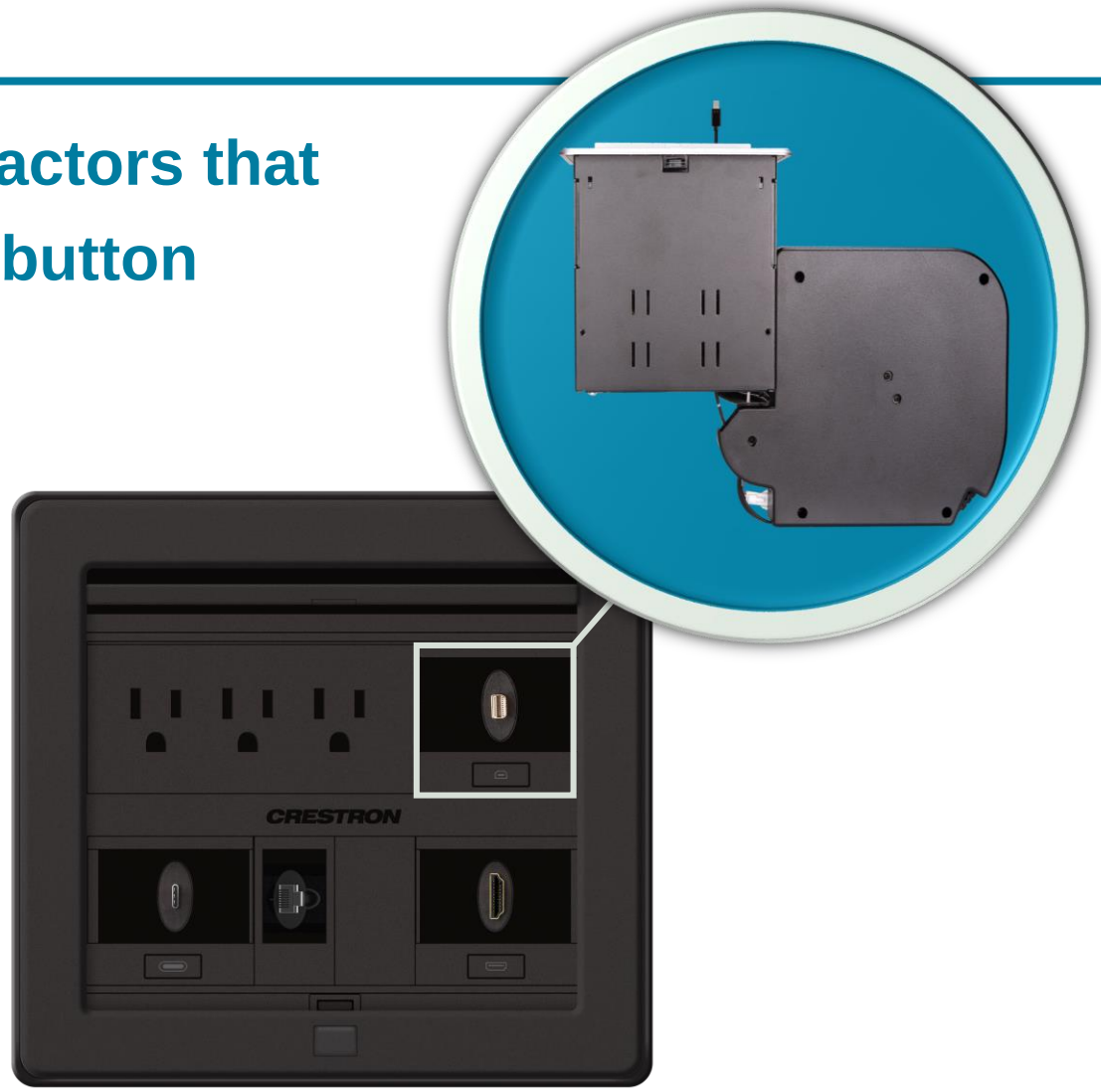
- Up to 3’ of cable
- Retract gently by lifting the cable vertically above the FlipTop
- Installs in any corner of a FT2 FlipTop
- Field replaceable cable included
- Active and Passive
- Requires two slots
- Extends 28.11” vertically down from the top of the table



One-Touch Retractors

Electrically clutched, spring powered retractors that reels in cables with a touch of the backlit button

- 8” diameter under the table enclosure allows 4’ of cable to be extended easily
- Active only
- Requires two slots
- Automatic retraction with control system
- Extends 11.58” vertically down from the top of the table



Tailor The Audio Experience

Commitment to commercial audio

Saros® Ceiling Speakers

Saros Surface Mount

Saros Pendant

Saros Powered Soundbar

Modular Amps

Digital Signal Processors

Networked Install Amplifiers

Vector™ Performance Loudspeakers

Saros In-ceiling Speakers

Saros ICI - Good

4" and 6.5" models, low-cost, paintable white

Saros ICE - Better

4", 6.5", and 8" low profile versions, black and white, magnetic grille

Saros IC - BEST

4", 6.5", and 8", plus 8" subwoofer, low profile versions

In-ceiling speakers for all system requirements and budgets

- Good, better, best lines
- Versatile mounting

Saros Ceiling Speakers

Saros ICT5T-12 Ceiling Tile Speaker

- 1 ft x 2ft ceiling tile mount speaker
- Designed for classrooms, meeting spaces and indoor distributed sound applications
- Features a coaxial 5” two-way driver
- Low profile enclosure - ideal for use in plenum spaces
- Built-in 16-Watt multi-tap transformer for use with 70/100V systems or 30W at Lo-Z
- Drop-in simplicity affords fast and easy installation

CRESTRON

Saros Pendant Speakers

Saros pendant

4", 6.5", and 8" IC components, paintable white & black

Saros pendant subwoofer

8" subwoofer, same size at 8" loudspeaker

Pendants are perfect for:

- Corporate lobbies
- Open ceiling plan spaces

Saros Powered Soundbar

SB-200P

Stereo, 2x20w amplifier, balanced and unbalanced inputs, auto-power off

Powered soundbars are perfect for:

- Huddle or small conference rooms
- Rooms with inaccessible ceilings / no ceiling grid
- Kiosk displays or lobby signage

UC SoundBar Series

- All-in-one UC device = AMP + DSP + MIC + speaker
- Powered high-fidelity soundbar
- USB hub built-in to provide a single USB connection to audio and video
- Next generation far-field beam forming microphone
- Amazing sound quality
- Analog line in and line out

UC-SB1-CAM

- Built-in next generation Huddly™ IQ camera

Crestron Avia DSPs

There are problems to solve

- **Configure:** Quickly program with DSP channel strips
- **Control**: Easily generate and connect UI elements
- **Tune:** Spectrum Analyzer and speaker profiles
- **Expand:** Dante® audio networking, VOIP, POTS, USB
- **Integrate:** Native Crestron enterprise connectivity
- **Perform:** World-class professional audio performance

Crestron Avia DSP

- DSP-1283: 12x8 matrix with Dante and AEC
- DSP-1282: 12x8 matrix with AEC
- DSP-1281: 12x8 matrix with Dante
- DSP-1280: 12x8 matrix
- DSP-860: 8X6 matrix

Coming soon: UC-DSP

Crestron Avia DSP

UC-DSP Simplified Conference Audio

- Microsoft Certified Conference Room Focused DSP
- Preconfigured DSP, use with UC Engine and literally plug and play
- USB, Dante, and 12x8 Analog I/O
- Crestron Avia™ DSP Software 2.0 completely redesigned AEC
- Supports new Crestron Avia™ DSP Software 2.0 Tool for Guided Setups
- Native integration into the Crestron Eco-System including SIMPL & Crestron XiO Cloud

Avia 2.0 Software

- New guided experience – simplify installation
- Input and output device definitions
  - Microphone libraries
  - VC / UC Codec connections
  - Speaker libraries
  - Output connections
- No longer need an expert to achieve great sound
- Crestron is committed to pro audio

Avia

CRESTRON

Upgrade and Evolve

DM®

Current DM 8G+ products

- DM switchers
- Presentation systems
- Endpoints

- Upgrade to current standards just by adding new cards/endpoints.

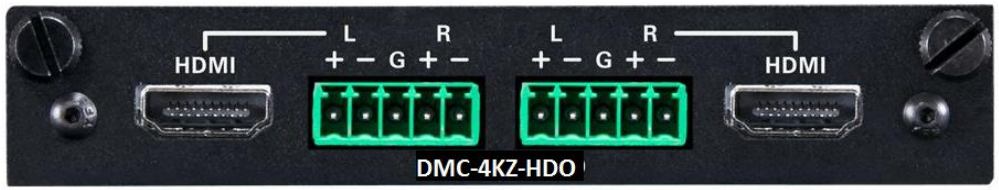
CRESTRON

DM®

What's new to DM?

- DMC-CPU3
  - Crestron XiO Cloud™ service provisioning
  - Enhanced 3-series security protocol support
- 4KZ
  - DM-RMC-4KZ-SCALER-C
  - DMC-4KZ-HDO

- Employs VESA Display Stream Compression to support resolutions beyond 4K60 4:2:0 and HDR
- Fully compatible with existing chassis and cabling
- Same price as existing product!



Share Every Message Anywhere

CRESTRON
APPSPACE

Who is Appspace®?

With the support of our partners, Appspace is 125 experts committed to helping enterprises inform and engage their teams in a simple and scalable way.

500+
Number of subscription customers globally

50+
Number of global Fortune 500® customers

300+
Number of resellers around the world

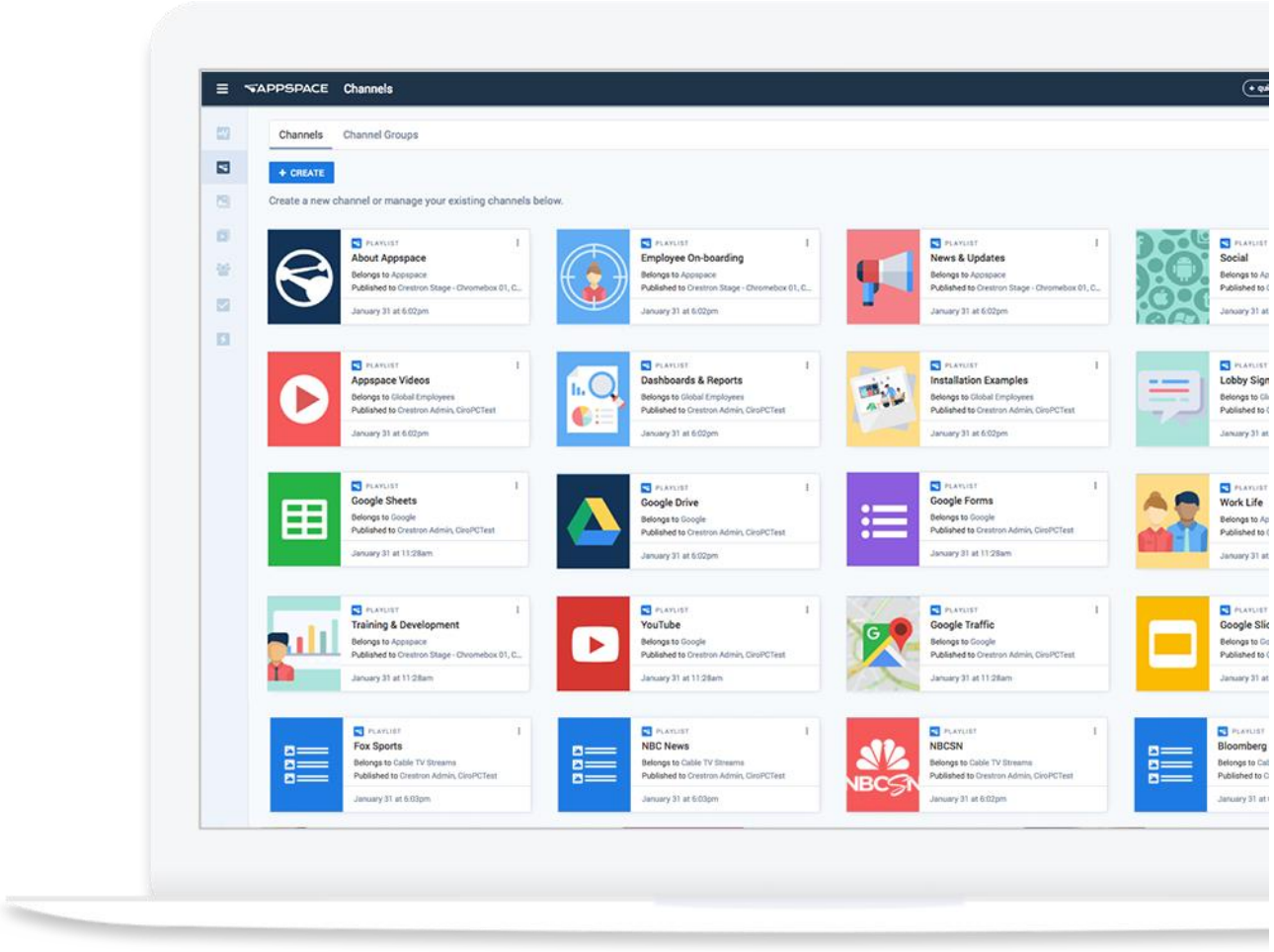
15+
Years of enterprise SaaS

Representative customers

APPSPACE

Simple content authoring and publishing

Channels provide the flexibility to meet a variety of communication initiatives



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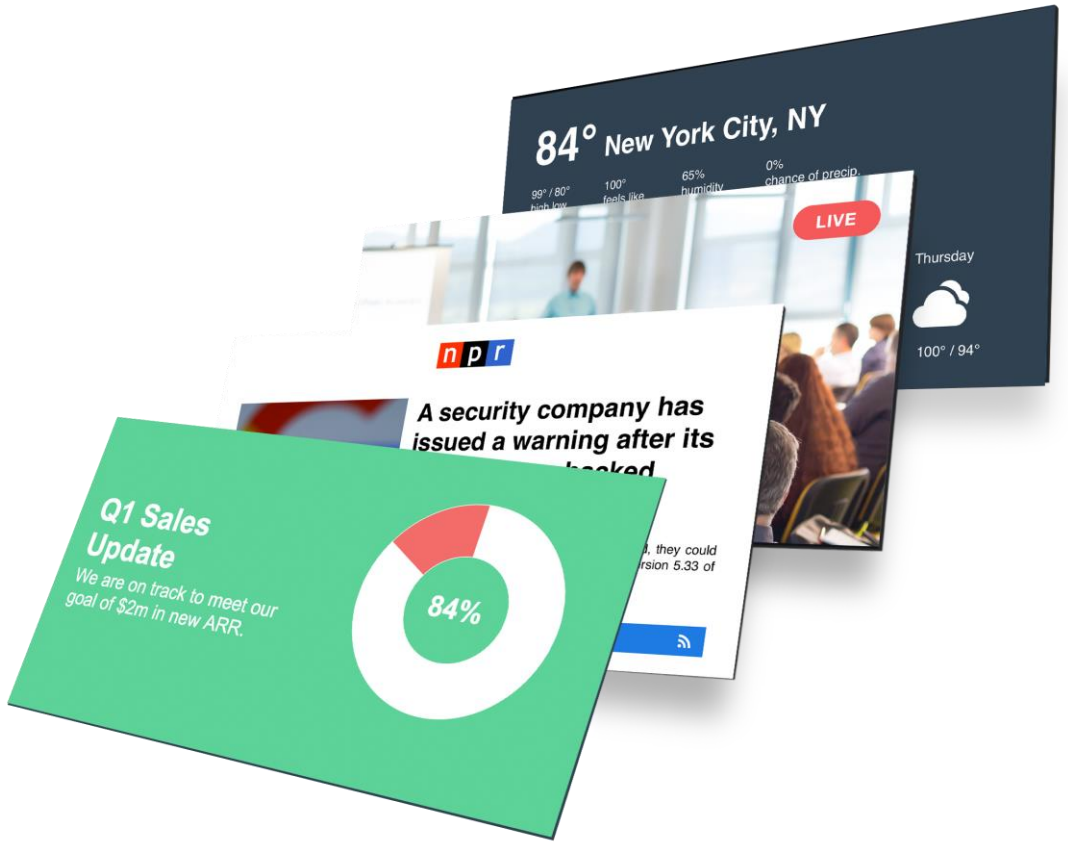
APPSPACE

HTML Card Templates

Share announcements, videos, reports, social media feeds, data, and more. Author once and view on all your devices.



CRESTRON

APPSPACE

Integrate with familiar tools

Our open API and card framework provide easy integration with the tools you know and love.

Digital Signage – NME-100 Network Media Endpoint

New Enterprise Digital Signage Player

- Designed to be placed behind a display and run 24/7
- Simple plug'n play connectivity
- Works within Crestron's XIO Cloud for deployment and zero touch deployment
- Integration with Appspace to create stunning presentations with full motion content
- 1080p, built-in 16GB storage, and expandable with microSD card

- See the demo – LIVE!

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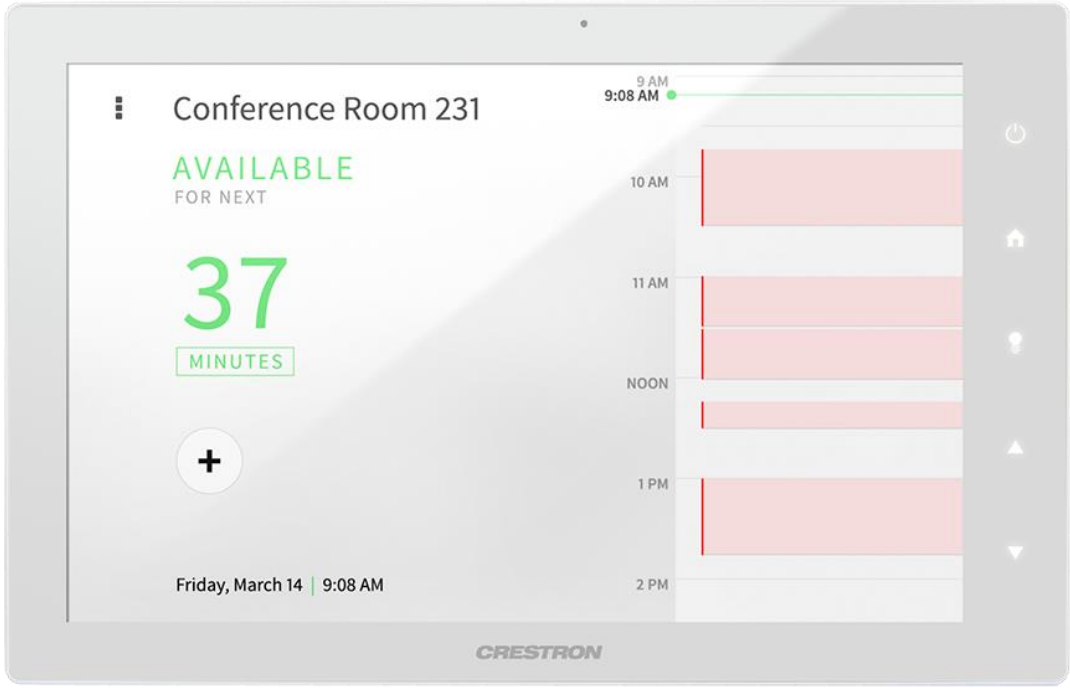
Connecting People, Information and Places

Crestron Room Scheduling

Enterprise-grade hardware for any scheduling workflow

Crestron scheduling panels provide a full range of scheduling providers all from one unified hardware platform, including directly connecting to popular calendar providers, Crestron Fusion ®, and a variety of partner applications



Room Scheduling Screens

Built on the TSW-x60 platform

Crestron scheduling runs on top of the existing TSW-560/760/1060, so it has all of the security and management applications you already expect from them, including:

- Active Directory ® integration
- 802.1x authentication
- PoE+ for power and communication
- Secure management via web UI or cloud provisioning
- Secure mounting options for a variety of surfaces

Direct Connect Calendars

Simple scheduling without expensive, complicated software

Crestron ® scheduling panels connect directly to:

- Microsoft Exchange Server ®
- Google ® G Suite™ (Calendar)
- Microsoft ® Office 365 ®
- AdAstra
- CollegeNET

Partner Scheduling Applications

Room Scheduler Accessories

Illuminated signage makes it easy to find meeting rooms

Choose the form factor that fits your aesthetic

Direct connection via USB

No programming required!

Touch Screen Light Bar
7” (TSS-7-LB) **or**
10” (TSS-10-LB)

Room Availability Status Indicator – Wall Mount
SIW-100

Room Availability Hallway Sign – Wall Mount
SSW-100

Room Availability Hallway Sign – Ceiling Mount
SSC-100

CRESTRON

Every Device. Everywhere. Natively. Only Flex Can.

Crestron P-Series Voice Platform

Microsoft Certified Skype/Teams Phones

- Deliver a native telephone experience for Skype/Teams
- Provide features like:
  - Calendar access
  - One-touch meeting/conference join
  - Directory Lookup
  - Handsfree / Bluetooth support
- Includes 1-yr of XiO Cloud

Crestron M-Series Tabletop Solution

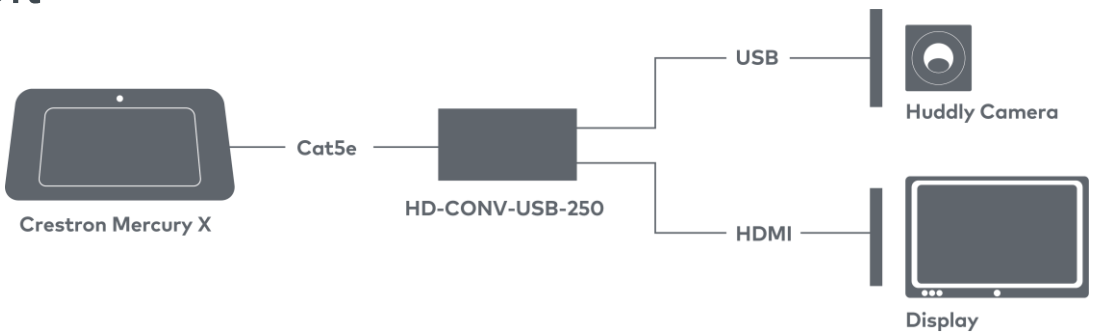
Microsoft Certified Skype/Teams Device

- Provides a complete video conference room solution for use with the Microsoft Teams® intelligent communications platform
- Delivers features like:
  - One-touch meeting/conference join
  - Present, call, conference, and collaborate
  - Native video experience
  - Supports single or dual display configurations
- Includes 1-yr of XiO Cloud

Crestron Mercury X

Next-generation Mercury device

- Latest evolution of tabletop meeting and collaboration solutions
- Single-cable connectivity facilitates installation
- Allows the use of native platforms like Microsoft Teams or Zoom Rooms – but also supports BYOD on same device
- On display – come and see it!



Crestron B-Series Smart Soundbar

Microsoft Certified Skype/Teams Endpoint

- Provides a complete front-of-the-room video conference solution for use with the Microsoft Teams® intelligent communications platform
- A consistent user experience in every meeting space is provided via the familiar and intuitive Microsoft Teams UI
- Delivers features like:
  - One-touch meeting/conference join
  - Present, call, conference, and collaborate
  - Native video experience
  - Supports single or dual display configurations
- Includes 1-yr of XiO Cloud

Unified Communications. Unlocked

Mercury for Open UC

Provides a complete video conference room solution for open-platform UC applications.

Enables exceptional full-duplex wideband audio conferencing, speakerphone, video conferencing, BYOD multimedia presentation, content sharing, and web collaboration capabilities — all through one amazing tabletop touch screen console.

zoom

amazon Chime

GoToMeeting

slack

cisco WebEx

cisco Spark

Atlassian HipChat

BlueJeans

CRESTRON

Smart Soundbar Solutions

Sleek and stylish soundbar

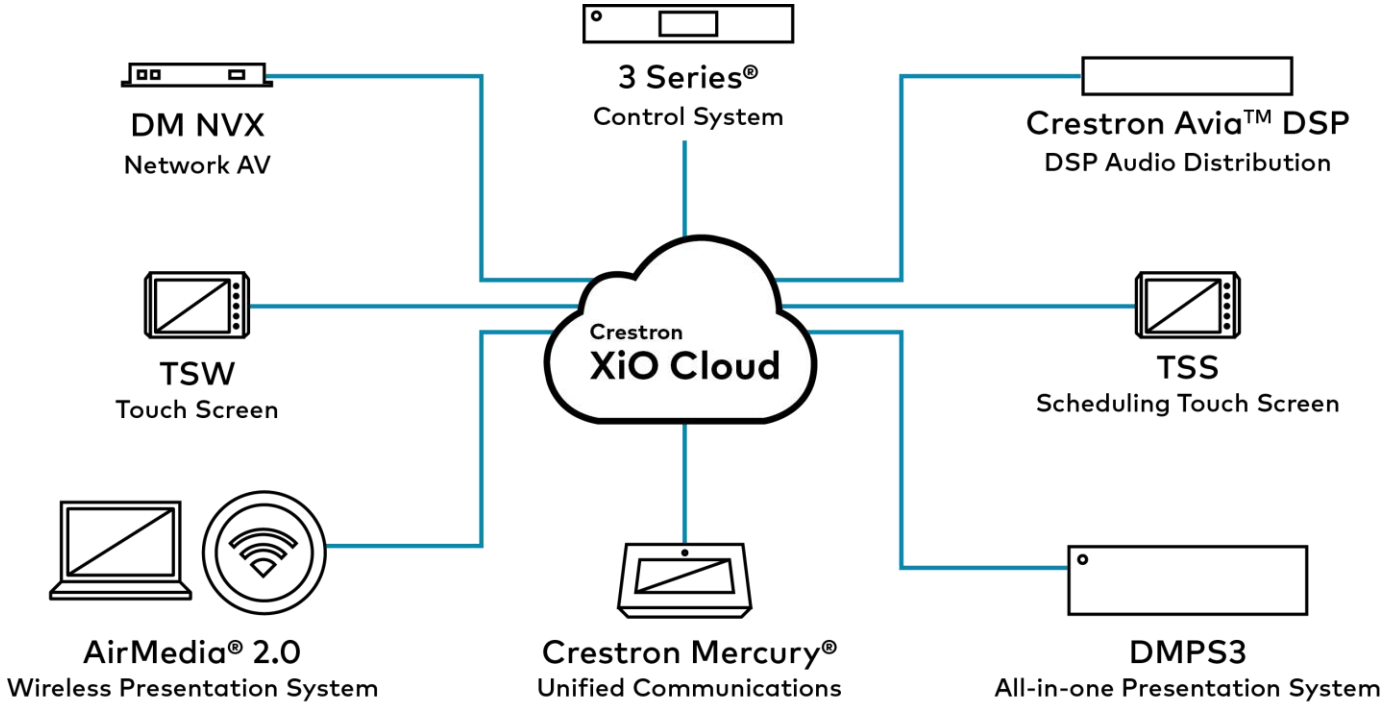
- High-performance conferencing speakerphone in one stunning front-of-room device
- Installs cleanly beneath the room display, and interfaces with any computer via USB.
- 23 ft (7 m) microphone pickup range — eliminates any need for tabletop microphones
- High-powered 2-way stereo speakers produce full, rich, and natural sound quality

AV meets IoT

Crestron XiO Cloud

The complete package

- Secure communication
- Outbound server connection
- Enterprise-grade hardware
- One vendor



Microsoft

Microsoft Azure

Microsoft Partner
2018 Partner of the Year
Internet of Things

CRESTRON

Why choose Crestron XiO Cloud?

The management platform for the modern, intelligent workplace

- Reduce install time and cost
- Configure millions of devices instantly
- Resolve events remotely
- Gather data with zero programming

Manage

Update settings and firmware without going on-site

Securely update millions of devices worldwide from the comfort of your browser

- Change setting once, update everywhere immediately
- Firmware update everything at once – security fixes in minutes, not days
- Audit logs of every change from the Cloud – quickly identify problems and undo them, reducing diagnostic time and increasing uptime

CRESTRON

Monitor

No more panicked calls

Be the first – and only one – to know when there's a problem, then fix it remotely

- View live status of millions of devices from anywhere at any time
- Know any change on a device within seconds
- Resolve events remotely
- No extra tools to configure required

Evolve

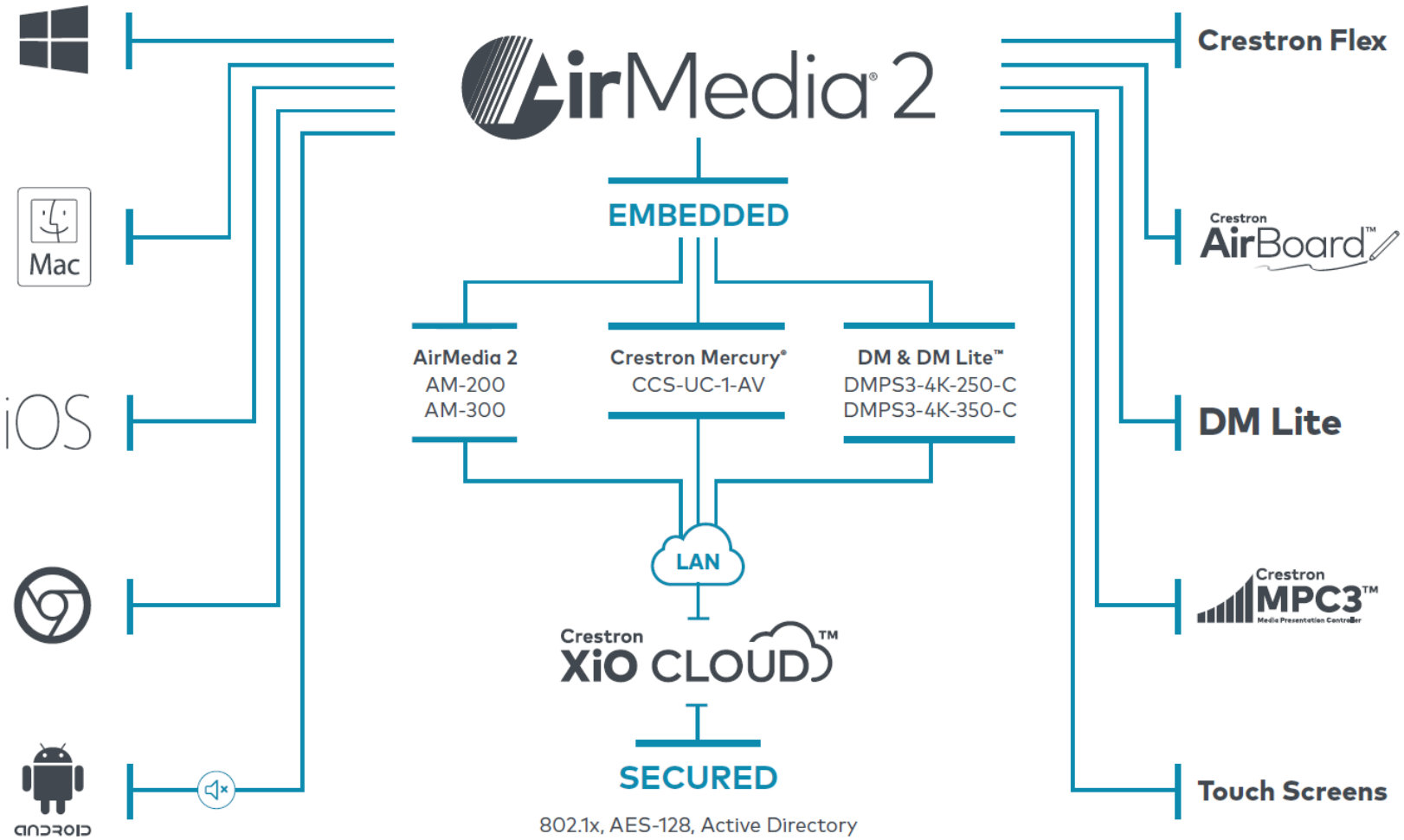
Optimize your workplace technology experiences

Your people are your biggest investments. Make sure your spaces and technology are designed around them.

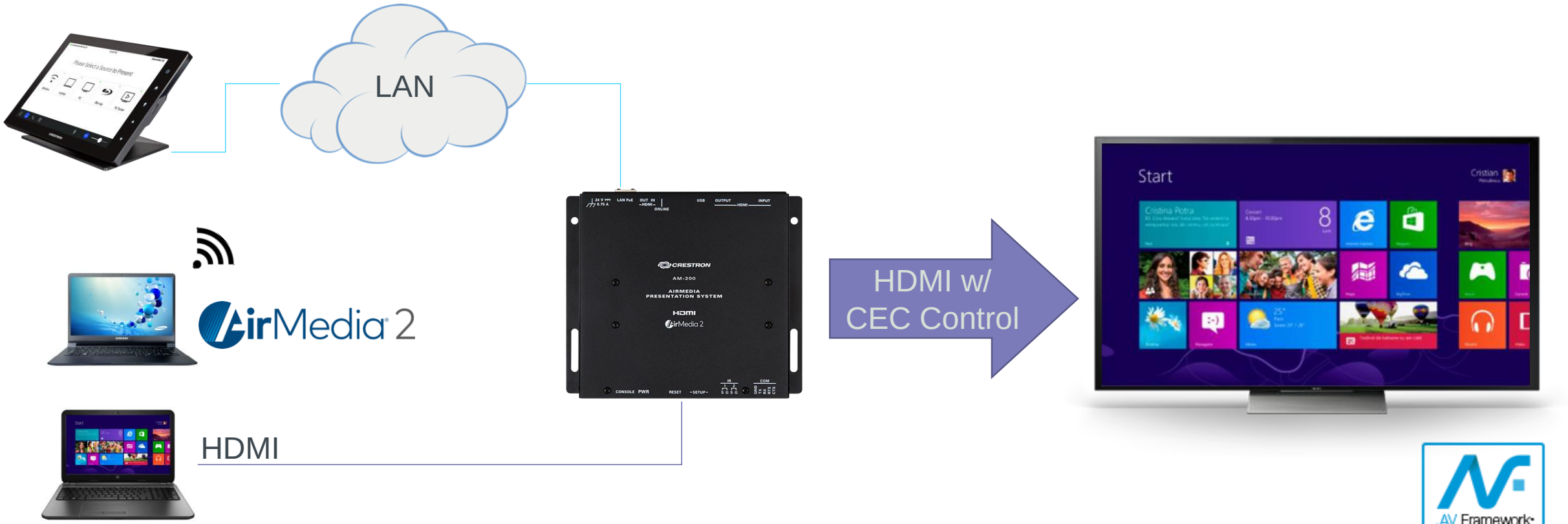
- Interactive dashboards show how your spaces are actually used
- Gather data with zero programming
- Make your next technology investment with the confidence it will support how your company works

Present, Capture, Display and Share Ideas - Wirelessly

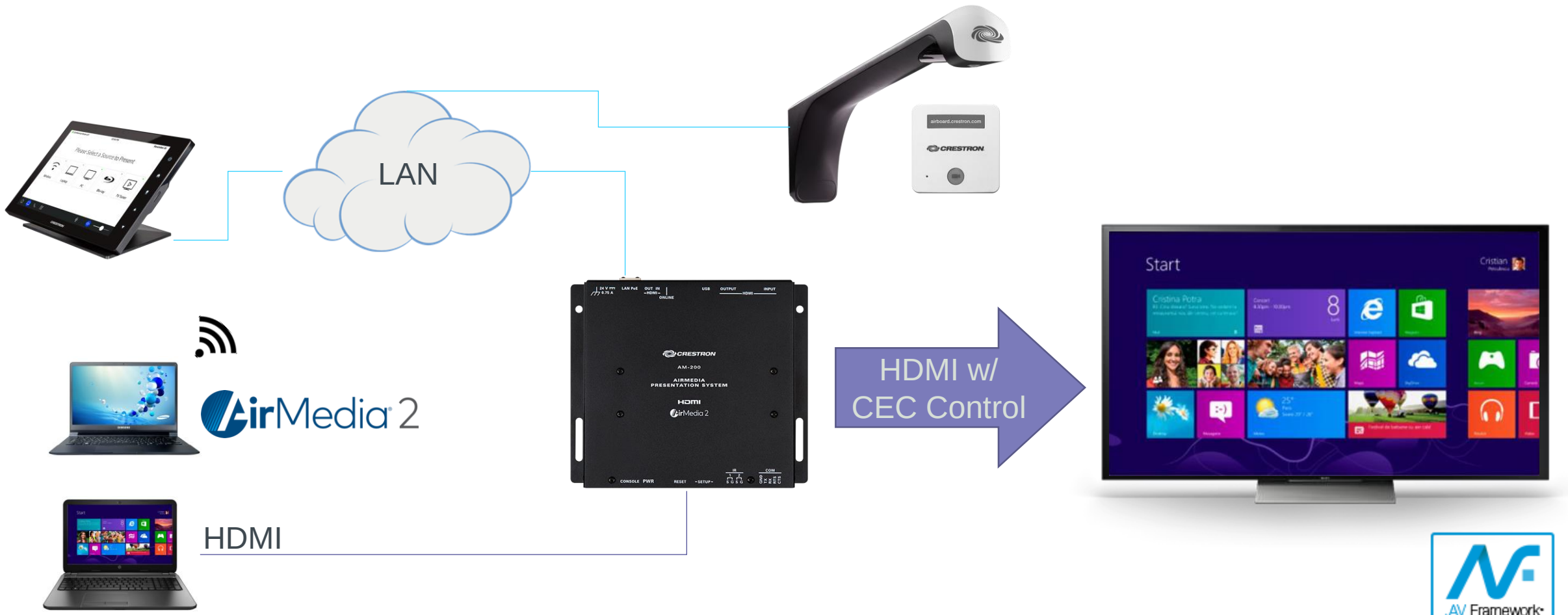
One Experience. One Platform. One Ecosystem



AirMedia Room Solutions



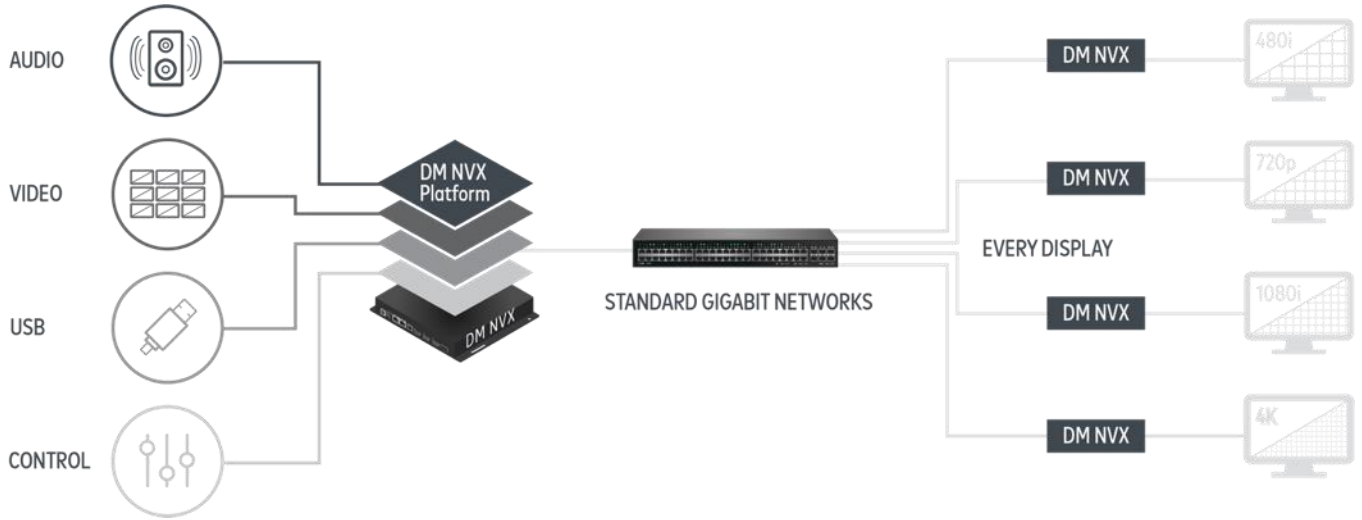
AirMedia Room Solutions – Add AirBoard



Flexible. Scalable. Secure. YES.

Every Format. Every Type of Content. YES

- Any network
- Any type of content
- Multilayer technology combines signals onto one platform
- Greater flexibility
- Highly scalable

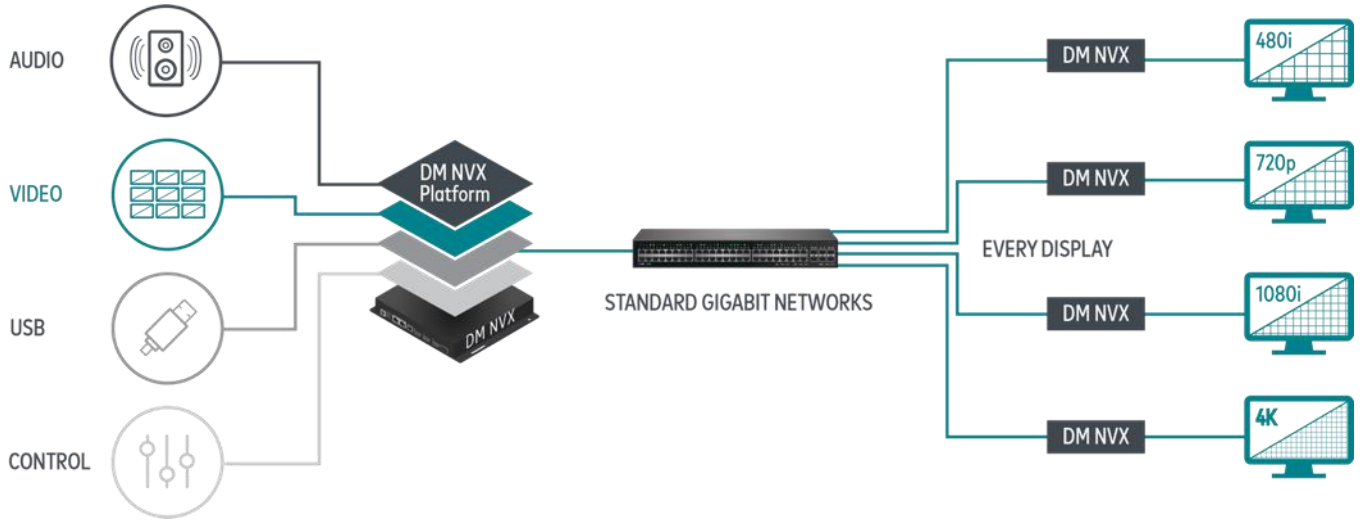


Every Format. Every Type of Content. YES

Video

- Routing – any signal on the network to any endpoint
- Formats –

480i	720p
1080i	1080p
4K 4:2:0	4K 4:4:4
4K w/ HDR	



- Inputs – HDMI or Network Video Stream
- Outputs – HDMI or Network Video Stream
- Video Wall Processing – supports 8x8 configurations

Every Format. Every Type of Content. YES

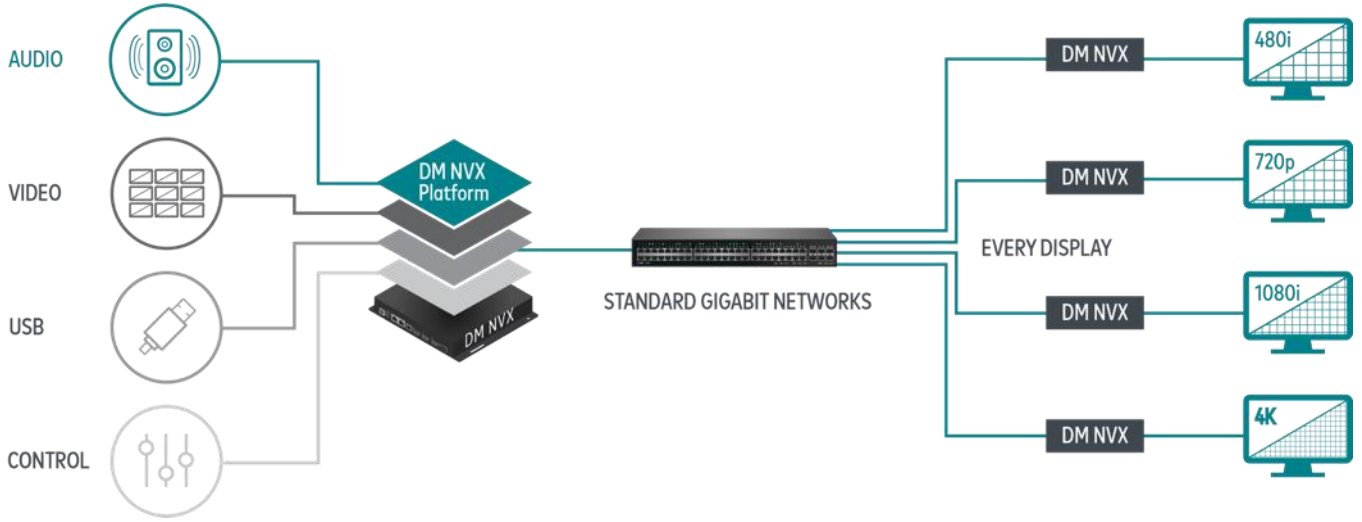
Audio

- Routing – any signal on the network to any endpoint or combine audio and video from different sources
- Formats –

  Digital HDMI and Stereo 2-channel

Dolby Digital®	Dolby Digital EX
Dolby Digital Plus	Dolby® TrueHD
Dolby Atmos®	DTS®
DTS-ES	DTS 96/24
DTS-HD High Res	DTS-HD Master Audio™

  LPCM up to 8 channels



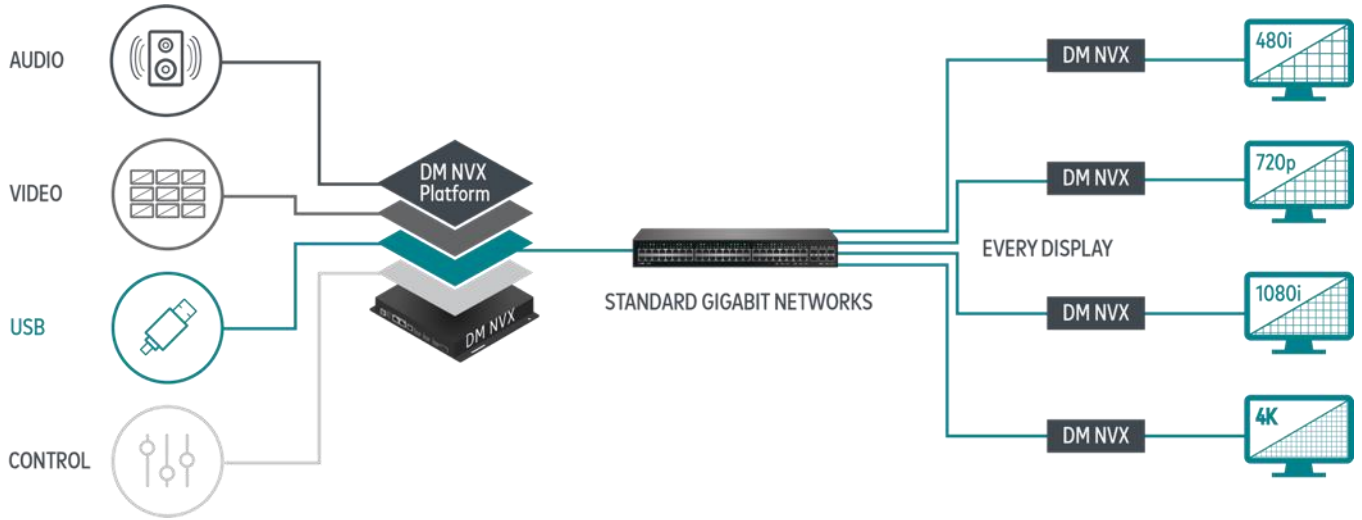
- Downmixing – NVX-351 includes a DSP
- Dante & AES-67 – Now on NVX-352 models

Every Format. Every Type of Content. YES

USB

- Routing – any signal on the network to any endpoint
- Interfaces – Full USB 2.0 support

Mouse	Keyboards
Cameras	ID readers
PCs	Printers
Thumb Drives	Hard Drives
Video game controllers	

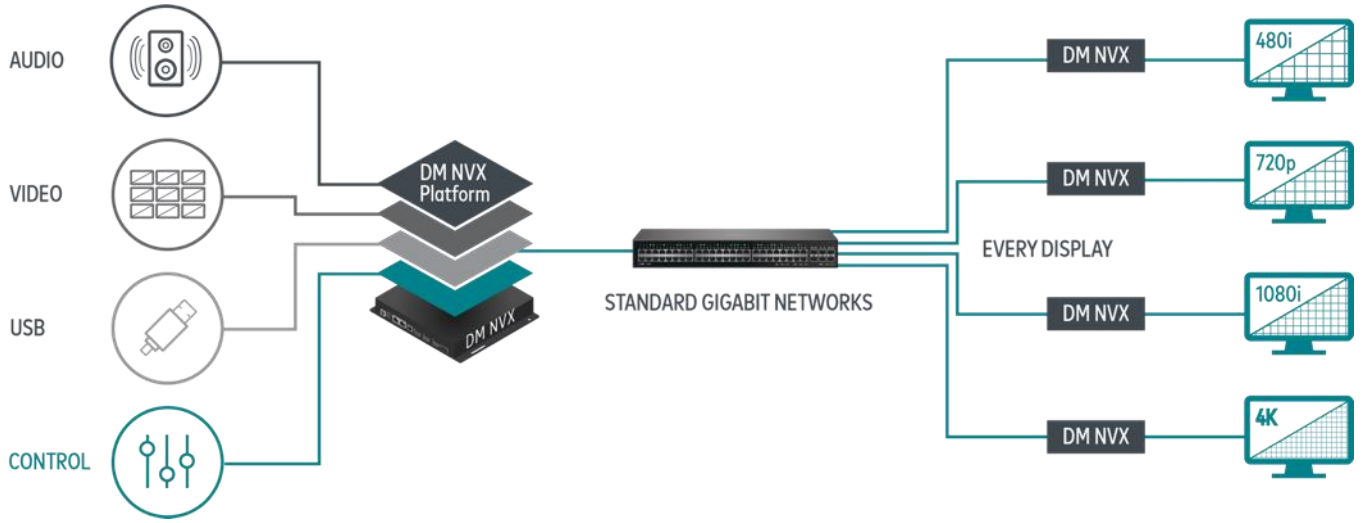


- Bi-directional – Route in either direction, regardless of if the unit is in Transmitter or Receiver mode.
- USB-EXT-DM - signals can be routed between DM NVX and USB-EXT-DM units over the network

Every Format. Every Type of Content. YES

Control

- IP – Second RJ45 port provides control signals to a local devices
- IR & RS-232 – device acts as a gateway for control of common displays and other devices
- CEC – Built in CEC allows for display control via HDMI



Every Need. YES

- Ecosystem of products work as one
- Choose the features you need without sacrificing performance or interoperability
- Everything you need, nothing you don’t

DM NVX

352

351

350

D30

E30

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The New Alliance.

DM-NVX-D80-IoAV

Designed to fit into an OPS slot, makes any compatible display into an NVX receiver.

DM NVX – As Good As The Source

The only Network AV solution that delivers flawless video and Pixel Perfect images.

- Pixel Perfect Processing only available with DM NVX, developed in conjunction with Intel and intoPIX
  - Developed over 18 months
  - Builds on the fundamentals and efficiencies of JPEG 2000
  - Adds to DM NVX reputation for flawless video
- Delivers the same quality as a direct HDMI® source
- Imperceivably perfect, see the finest detail in the most dense image

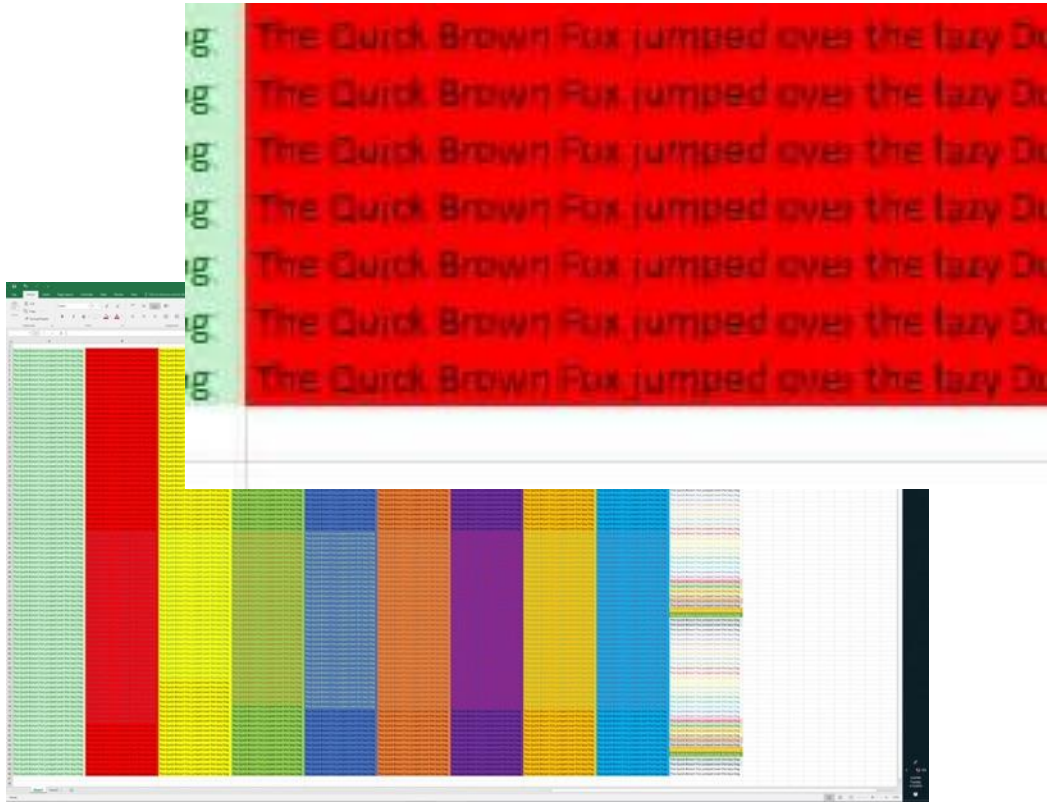
DM NVX – As Good As The Source

First gen image
JPEG2000

Pixel Perfect Image
Pixel Perfect Processing

Pixel Perfect Processing. YES

First gen image
JPEG2000



Pixel Perfect Image
Pixel Perfect Processing

CRESTRON

YES.

DM NVX.™ The 1Gb Network AV Solution that works with any network, any application, any design.

Any network, any ask. DM NVX says yes.

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