KanexPro

COLLABORATION — HUDDLE ROOM

2×1 HDMI & USB-C Huddle Room Switcher with USB 3.2 KVM

4K60 4:4:4, 100W USB-C PD, Balanced Audio I/O, Dual 1G Ethernet with 802.1x — Designed for Corporate BYOD Rooms

The COL-HUD-21 eliminates the multi-adapter problem in corporate huddle rooms by combining HDMI and USB-C source switching, USB 3.2 Gen 1 KVM, and 100W laptop charging into a single compact unit. With 4K60 4:4:4 output, balanced analog audio I/O, and dual 1G Ethernet ports with 802.1x/VLAN support, it delivers enterprise-grade BYOD connectivity that IT departments can spec with confidence.

Designed for Teams and Zoom environments, the COL-HUD-21 routes video, USB peripherals, and network access from any connected laptop through one HDMI cable to the room display — no docking stations, no adapters, no IT headaches. Auto and manual switching, CEC/IR/RS-232/GPIO display control, and a Web GUI make it simple to install, manage, and integrate into any control system.

TABLE OF CONTENTS

FEATURES

- HDCP 2.3 and DP 1.4a compliant
- 2×1 huddle room switcher — USB-C and HDMI inputs, HDMI output
- USB-C input with DP Alt mode up to 4K60 4:4:4, USB 3.2 Gen 1 (5Gbps), 1G Ethernet, and 100W charging
- HDMI input up to 4K60 4:4:4 as specified in HDMI 2.0b
- Fast switching with auto and manual switching modes
- Auto switching with signal detection and 5V source detection
- USB 3.2 Gen 1 (5Gbps) host and local hub
- USB 3.2 Gen 1 (5Gbps) device port with 5V/1.5A power output
- Balanced/unbalanced analog audio embedding to USB or HDMI audio
- Balanced/unbalanced analog audio de-embedding from USB or HDMI audio
- Advanced EDID management — 18 presets plus 2 user-defined profiles
- User-defined welcome screen and no-signal display image
- Dual 1G Ethernet ports with 802.1x and VLAN support
- IR eye for IR learning and control
- Auto display on/off control
- External device control via CEC, IR, RS-232, LAN, and GPIO
- 5 preset scenes for fast room configuration recall
- Internal pattern generator — 12 patterns at up to 4K60
- Control via front panel buttons, RS-232, TCP/IP, and Web GUI

PACKAGE CONTENTS

- 1× 2×1 HDMI & USB-C Huddle Room Switcher
- 1× 24V/7.5A Power Supply
- 1× IR Blaster Cable (1.5m)
- 1× 3-pin Phoenix Connector (male)
- 2× 5-pin Phoenix Connector (male)
- 1× 6-pin Phoenix Connector (male)
- 4× Rubber Foot
- 2× Mounting Ear
- 4× Machine Screw M3×5 (rubber feet)
- 4× Machine Screw KM3×6 (mounting ears)
- 1× User Manual

DEFAULT SETTINGS

- IP Address: 192.168.0.100 (Static)
- TCP/IP Port: 8000 | Telnet Port: 23
- Web GUI: Admin/1234 • User/1234
- Auto switch mode: Input Signal
- Auto standby: 15 minutes
- RS-232: 115200-8N1
- Network mode: Separated (ETH1=control, ETH2=pass-through)
- HDMI Power Saving: On
- USB switch mode: Follow Video

SPECIFICATIONS

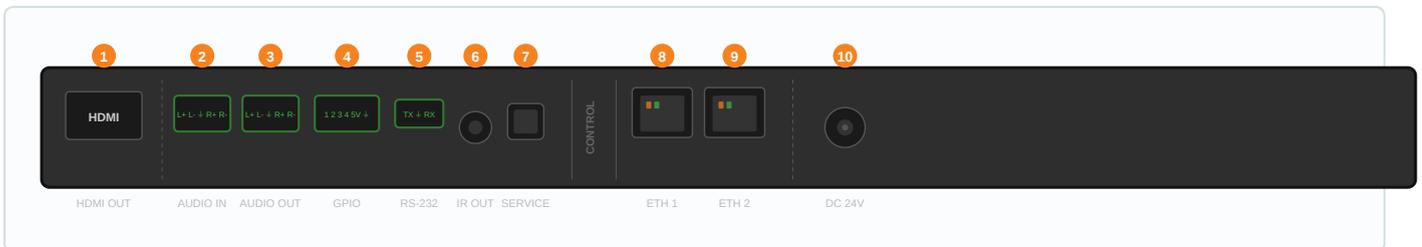| SPECIFICATION	VALUE
Technical	
HDMI Compliance	HDMI 2.0b
HDCP	HDCP 2.3
DP Compliance	DP 1.4a (USB-C input)
USB Compliance	USB 3.2 Gen 1 (5Gbps)
Video Bandwidth	18Gbps
HDR Support	HDR, HDR10, HDR10+, Dolby Vision, HLG
Color Space	RGB, YCbCr 4:4:4 / 4:2:2 / 4:2:0
Color Depth	8/10/12-bit (8-bit at 4K60 4:4:4)
Audio (Digital)	LPCM, Dolby Digital/Plus/EX, Dolby TrueHD, Dolby Atmos, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio, DSD
Audio (Analog)	LPCM 2CH, 32–192kHz sample rate
Audio S/N Ratio	>90dB @ 0dBu, 1kHz, A-weighted
Audio THD+N	<0.01% at +4dBu, 1kHz
IR Frequency	20kHz–60kHz
ESD Protection	IEC 61000-4-2: ±8kV air / ±4kV contact
Connection	
Inputs	1× USB-C IN1 (24-pin), 1× HDMI IN2 (Type A), 1× USB Host (Type B)
Outputs	1× HDMI OUT (Type A), 1× USB Device (Type C), 2× USB Device (Type A)
Audio In	1× L/R Balanced/Unbalanced (5-pin 3.5mm phoenix)
Audio Out	1× L/R Balanced/Unbalanced (5-pin 3.5mm phoenix)
Control Ports	1× RS-232 (3-pin), 1× IR Out (3.5mm), 2× Ethernet (RJ45), 1× GPIO (6-pin), 1× Service (USB-C)
Physical	
Dimensions (W×D×H)	9.06″ × 5.12″ × 0.91″ (230 × 130 × 23mm)
Net Weight	1.75 lbs (0.796kg)
Housing	Metal, Black
Power Supply	DC 24V/7.5A (AC 100–240V, 50/60Hz)
Consumption	37W (idle) / 145W (with 100W USB-C charging)
Operating Temperature	32°F–104°F (0°C–40°C)

OPERATION CONTROLS AND FUNCTIONS

Front Panel

NO.	NAME	FUNCTION DESCRIPTION
1	Power LED	Green: operating normally. Red: standby mode.
2	IR	IR signal receiving window. Used for IR learning.
3	Display ON/OFF	Enable or disable connected display output. Control type configurable via Web GUI (CEC/IR/RS-232).
4	IN1/IN2/AUTO	**Short press:** Switch between IN1 and IN2; active input LED illuminates. **Long press (3s):** Toggle auto switching mode; AUTO LED illuminates when active.
5	USB-C IN1	DP Alt mode 4K60 4:4:4, USB 3.2 Gen 1 (5Gbps), 1G Ethernet pass-through, 100W charging. Source must support DP Alt mode for video.
6	HDMI IN2	HDMI 2.0b input up to 4K60 4:4:4.
7	HOST	USB Type-B upstream port. Connect to PC to share USB peripherals.
8	USB Devices 1/2	USB-A downstream ports, 5V/1.5A. Connect cameras, keyboards, or speakerphones.
9	USB Device 3	USB-C downstream port, 5V/1.5A.

Rear Panel

NO.	NAME	FUNCTION DESCRIPTION
1	HDMI OUT	HDMI Type-A output. Connect to room display or projector.
2	L/R Audio In	5-pin 3.5mm phoenix. Balanced/unbalanced input, max 2Vrms balanced. Embeds to USB or HDMI audio.
3	L/R Audio Out	5-pin 3.5mm phoenix. Balanced/unbalanced output. De-embedded from HDMI or USB audio source.
4	GPIO	6-pin 3.5mm phoenix. 4 GPIO pins configurable as input (5V/0V) or output (5V/0V) via Web GUI or API.
5	RS-232	3-pin 3.5mm phoenix. Default 115200-8N1. Connect to control system or PC for API commands.
6	IR Out	3.5mm stereo mini-jack. Connect included IR blaster cable for display device control.
7	Service	USB-C port for firmware update and USB API control.
8	Ethernet 1	1G RJ45. Default: TCP/IP and Web GUI. Both ports support 802.1x and VLAN.
9	Ethernet 2	1G RJ45. Default: USB-C 1G Ethernet pass-through. Switch Mode: also TCP/IP/Web GUI.
10	DC 24V	DC 24V/7.5A power input. Use included supply only.

WEB GUI

Connect ETHERNET 1 to a PC. Default IP: **192.168.0.100**. Open a browser and navigate to the IP address. Login: **Admin / 1234**. Pages: tion, Preset, Control (video/audio routing), Input, Output, USB, Display, Network, System.
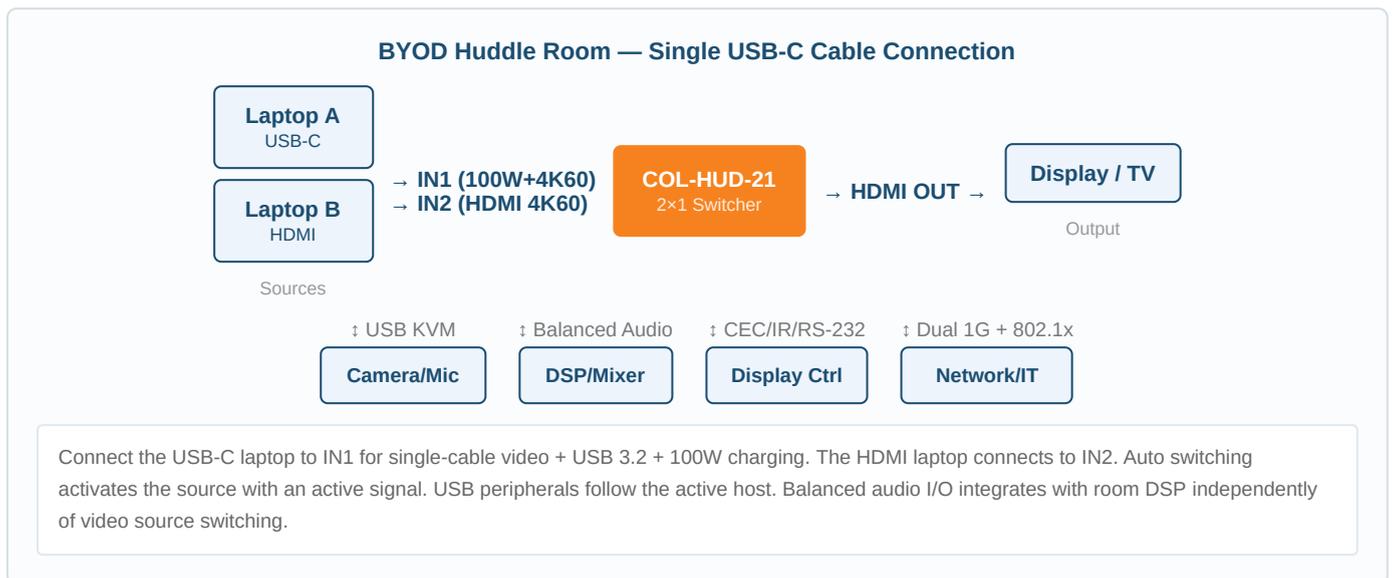
Note: USB-C source must support DisplayPort Alt Mode for video transmission. USB-C charging (100W) requires power supply connected to DC 24V port.

API COMMANDS (KEY COMMANDS)

RS-232: 115200-8N1 | TCP/IP Port: 8000 | Telnet Port: 23 | End flag: CR+LF

COMMAND	FUNCTION	COMMAND	FUNCTION
set output 1 from 1	Route USB-C IN1 to HDMI OUT	set input 0 edid 1	Set all inputs to Auto EDID
set output 1 from 2	Route HDMI IN2 to HDMI OUT	set input 0 edid 2	Set all inputs: 4K60 PCM 2ch
set output 1 auto switch 1	Enable auto switching	set input 0 edid 4	Set all inputs: 4K60 7.1ch HD
set display 1 power 1	Display power on	set output 1 video 1	Output: auto resolution
set display 1 power 0	Display power off	set output 1 video 3	Force 1080p downscale
set usb switch mode 1	USB follows video	set net mode 1	Separated mode (default)
set usb switch mode 3	USB auto switch	set net mode 2	Switch mode
set analog audio input 1	Embed audio to USB-C IN1	set preset save 1	Save preset 1
set analog audio output 1	De-embed from HDMI OUT	set preset recall 1	Recall preset 1
get ipconfig	Get current IP address	set gpio 1 value 3	GPIO 1 output high (5V)
power on / power off	Power on/standby	set baud 6	Set RS-232 to 115200
status	Get full device status	reset	Reset to factory defaults

APPLICATION EXAMPLE

BYOD Huddle Room — Single USB-C Cable Connection

| Laptop A USB-C |
| Laptop B HDMI |

→ IN1 (100W+4K60)
→ IN2 (HDMI 4K60)

COL-HUD-21 2×1 Switcher

→ HDMI OUT →

Display / TV Output

Sources

↕ USB KVM → **Camera/Mic**
↕ Balanced Audio → **DSP/Mixer**
↕ CEC/IR/RS-232 → **Display Ctrl**
↕ Dual 1G + 802.1x → **Network/IT**

Connect the USB-C laptop to IN1 for single-cable video + USB 3.2 + 100W charging. The HDMI laptop connects to IN2. Auto switching activates the source with an active signal. USB peripherals follow the active host. Balanced audio I/O integrates with room DSP independently of video source switching.

TROUBLESHOOTING

Q: No video from USB-C laptop?

Verify the laptop supports DisplayPort Alt Mode over USB-C. Not all USB-C ports carry video — check laptop specifications. Try setting EDID to 1080P60 to rule out resolution mismatch.

Q: USB-C is connected but laptop is not charging?

Confirm the DC 24V power supply is connected. USB-C charging is only active when the unit has mains power. The unit cannot charge via USB-C from the HOST port alone.

Q: No audio from the analog output?

Verify the de-embedding source: go to Web GUI > Control and ensure "Analog Audio Out" is set to HDMI Out or USB Audio as required. Audio embedding and de-embedding cannot both be active simultaneously.

Q: Cannot access Web GUI?

Connect to ETHERNET 1 (default: TCP/IP). Default IP is 192.168.0.100. Set the PC IP to the same subnet (e.g., 192.168.0.x). Use "get ipconfig" via RS-232 or USB service port to retrieve the current IP if changed.