8×8 HDBaseT Matrix Switcher with 4K60 & CAT Extension (150m)

The KanexPro MMX-8X8CAT-150M is an 18Gbps 8×8 HDMI matrix switcher with simultaneous mirrored HDBaseT CAT outputs. It connects 8 HDMI 2.0b sources to up to 16 displays simultaneously — 8 via direct HDMI and 8 via CAT5e/6/7 extension to the included 24V PoC-powered HDBaseT Receivers, reaching up to 492ft (150m) per run over a single CAT5e/6/7 cable.Audio de-embedding (coaxial and balanced analog) is available on every HDBaseT output port. Control via front panel, IR remote, RS-232, TCP/IP, and Web GUI.

Surge Protection Recommended — This device contains sensitive electronics. Use of surge protection is strongly recommended in all installations.

Cable Wiring — Use direct interconnection (T568B) wiring only. Do not use crossover cables for CAT connections.

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2. FEATURES

- ✓ 8 HDMI inputs • 8 HDMI + 8 mirrored HDBaseT outputs • 8 24V PoC HDBaseT Receivers included
- ✓ 18Gbps video bandwidth • HDMI 2.0b • HDCP 2.2/1.x • DVI 1.0 compatible
- ✓ Up to 4K2K@60Hz (YUV 4:4:4) on all HDMI and CAT ports
- ✓ HDR10, HDR10+, Dolby Vision, HLG pass-through
- ✓ HDBaseT extension up to 492ft / 150m via single CAT5e/6/7 cable with 24V PoC
- ✓ Independent 4K→1080p downscaler per output for mixed-resolution displays
- ✓ LPCM 2.0/5.1/7.1, Dolby Digital, Dolby TrueHD, DD+, DTS-ES, DTS-HD Master, DTS-X audio pass-through
- ✓ Coaxial and balanced analog audio de-embedding on every HDBaseT output port
- ✓ Bi-directional IR matrix routing • CEC display control • Advanced EDID management (21 factory + 2 user + copy modes)
- ✓ Control via front panel, IR remote, RS-232, TCP/IP LAN, and Web GUI • Crestron/AMX compatible
- ✓ 2U rack-mountable metal enclosure • 24V PoC on all HDBaseT ports

3. PACKAGE CONTENTS

- 1× 18Gbps 8×8 HDBaseT (150M) Matrix
- 8× HDBaseT Receivers
- 1× Matrix IR Remote
- 1× IEC Power Cable (AC 100–240V)
- 1× RS-232 Serial Cable (1.5m, male to female)
- 8× 3-pin Phoenix Connectors
- 8× 5-pin Phoenix Connectors
- 9× IR Blaster Cables (1.5m)
- 9× IR Receiver Cables (1.5m)
- 18× Mounting Ears (Matrix and Receivers)
- 1× User Manual

4. Specifications

VIDEO	
HDMI	HDMI 2.0b • HDCP 2.2/1.x • DVI 1.0
Bandwidth	18 Gbps
Resolution	Up to 4K2K@50/60Hz (YUV 4:4:4)
Color Space	RGB 4:4:4, YCbCr 4:4:4/4:2:2/4:2:0
Color Depth	8/10/12-bit (1080p) • 8-bit (4K60 4:4:4) • 8/10/12-bit (4K60 4:2:2/4:2:0)
HDR	HDR10, HDR10+, Dolby Vision, HLG
Downscaler	4K→1080p per output (independent)

AUDIO	
HDMI Audio	LPCM 2.0/2.1/5.1/6.1/7.1, Dolby Digital, TrueHD, DD+, DTS-ES, DTS-HD Master, DTS-HD HRA, DTS-X
Coax Audio	PCM 2.0, Dolby Digital/Plus, DTS 2.0/5.1
Analog Balanced	PCM 2.0CH • Vmax 2Vrms • SNR >90dB • THD+N <0.1% • 20Hz–20kHz ±0.5dB

HDBASET EXTENSION	
Distance	492ft / 150m (CAT5e/6/7 — 1080p; 394ft/120m for 4K60)
PoC	24V Power over Cable to receivers
ESD	±8kV air-gap / ±4kV contact

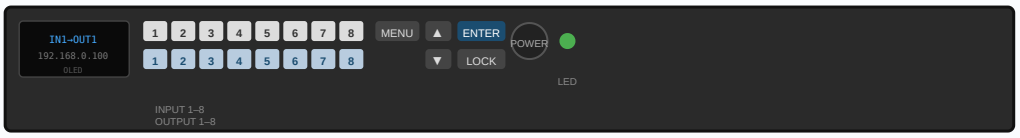
CONNECTIONS	
HDMI In	8× HDMI Type-A [19-pin female]
HDMI Out	8× HDMI Type-A [19-pin female]
HDBaseT Out	8× RJ45 [24V PoC]
Coax Audio	8× 3.5mm Stereo Mini-jack
Balanced Audio	8× 5-pin Phoenix
Control	1× TCP/IP [RJ45] • 1× RS-232 [D-Sub 9-pin]
IR	8× IR OUT • 9× IR IN • IR IN ALL [3.5mm]

MECHANICAL	
Housing	Metal, Black, 2U
Dimensions	440mm × 374mm × 88.6mm
Weight	Matrix: 6.54kg • Receiver: 155g
Power	AC 100–240V 50/60Hz → IEC Power Cable
Consumption	125W max
Operating Temp	32–104°F / 0–40°C
Storage Temp	−4–140°F / −20–60°C
Humidity	20–90% RH (non-condensing)

HDMI CABLE LENGTH	
4K60	Up to 16ft / 5m
4K30	Up to 32ft / 10m
1080p60	Up to 50ft / 15m

5. Operation Controls & Functions

5.1 MATRIX FRONT PANEL



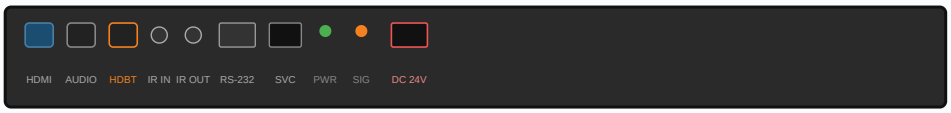
Front Panel — MMX-8X8CAT-150M (OLED display)

No.	Name	Function
1	**OLED Display**	Shows routing status, input/output port assignments, EDID mode, baud rate, and IP address in real time.
2	**INPUT 1–8**	Press OUTPUT button first, then INPUT button to complete routing assignment.
3	**OUTPUT 1–8**	Select the output channel to configure. Always press OUTPUT first, then INPUT.
4	**MENU**	1× press: EDID selection. 2× press: Baud rate selection. 3× press: IP/DHCP settings. Additional press returns to main display.
5	**UP / DOWN**	Navigate menu options. Also scrolls input/output selection.
6	**ENTER**	Confirm selected menu option.
7	**POWER**	Hold 3 seconds to enter standby. Press once to wake from standby.
8	**LOCK**	Lock/unlock front panel buttons (POWER is always active). Lock state shown on OLED.
9	**PWR LED**	Green = operating normally. Red = standby.

5.2 MATRIX REAR PANEL

No.	Name	Function
1	**IR IN 1–8 / ALL**	Connect IR receiver cables. IR signals forwarded to corresponding HDBaseT Receiver IR OUT ports. ALL port broadcasts to all receivers.
2	**IR OUT 1–8 / ALL**	Connect IR blaster cables. IR signals received from corresponding HDBaseT Receiver IR IN ports.
3	**TCP/IP [RJ45]**	LAN port for Web GUI and TCP/IP control. Default IP: 192.168.0.100.
4	**RS-232 [D-Sub 9]**	Serial control port. Connect to PC or control system. Baud rate 115200 (default).
5	**AUDIO OUT 1–8 (Coax)**	Coaxial audio de-embedded from the corresponding HDMI output. Supports PCM 2.0, Dolby Digital/Plus, DTS 5.1.
6	**AUDIO OUT 1–8 (Balanced)**	Balanced analog audio (5-pin Phoenix) de-embedded from the corresponding HDMI output. PCM 2.0CH stereo.
7	**OUTPUT 1–8 (HDMI)**	HDMI 2.0b output ports. Connect to local HDMI displays.
8	**OUTPUT 1–8 (HDBT)**	HDBaseT mirrored outputs. Connect to HDBaseT receivers via CAT5e/6/7 cable.
9	**INPUT 1–8 (HDMI)**	HDMI 2.0b input ports. Connect to source devices.
10	**POWER IN**	Connect supplied IEC power cable (AC 100–240V 50/60Hz).
11	**POWER SWITCH**	Press to power on/off the matrix.
12	**GND**	Ground terminal. Connect housing to earth ground for ESD protection.

HDBASET RECEIVER PANEL



HDBaseT Receiver Panel — MMX-8X8CAT-150M

No.	Name	Function
1	**Power LED (Red)**	Illuminates when receiver is powered on (via PoC or DC adapter).
2	**SERVICE Port (Mini-USB)**	Firmware update port. Contact KanexPro support for update files.
3	**DC 24V**	Power input. Note: Matrix provides 24V PoC — receiver can be powered via the HDBT cable. External DC adapter not required when PoC is active.
4	**HDBT IN [RJ45]**	Connect to the corresponding HDBaseT output port on the matrix with CAT5e/6/7 cable.
5	**Connection LED**	On = good connection. Flashing = poor connection. Off = no connection.
6	**Data Signal LED**	On = HDMI signal with HDCP. Flashing = signal without HDCP. Off = no signal.
7	**HDMI OUT**	Connect to HDMI display (TV, monitor, projector).
8	**AUDIO OUT [3.5mm]**	Analog stereo audio output extracted from HDMI signal. Connect to amplifier or audio zone.
9	**IR IN [3.5mm]**	Connect IR receiver cable. IR signal is forwarded to the corresponding IR OUT port on the matrix.
10	**IR OUT [3.5mm]**	Connect IR blaster cable. Emits IR from the corresponding IR IN port on the matrix.
11	**RS-232 [3-pin Phoenix]**	Serial control between matrix and receiver for pass-through commands.

6. IR REMOTE

The included IR remote controls the matrix routing. **Operation:** Press an OUTPUT button (1–8 or ALL) first, then press an INPUT button (1–8) to complete the routing. Pressing ALL then an input routes that source to all outputs simultaneously.

IR Reception: The matrix accepts IR remote signals two ways: (1) directly via the front panel IR window (up to 7m, ±45° angle); (2) via an IR receiver cable connected to the IR EXT / IR IN port if the front panel is obstructed or rack-mounted in a closed cabinet.

7. IR Cable Pin Assignment

Cable	Pin	Function
IR Blaster	+	Positive (signal)
	–	Ground
IR Receiver	Power	12V supply
	Signal	IR signal output

Use only the supplied IR cables. Third-party IR cables may have different pin assignments and can damage IR ports.

8. IR Control System

The MMX-8X8CAT-150M supports **bi-directional IR control** — both from the matrix end (local) to remote receivers, and from remote receivers back to the matrix end to control source devices.

IR CONTROL — MATRIX END (LOCAL → REMOTE)

IR signals at the matrix are transmitted **one-to-one** regardless of the video routing. IR IN 1 always emits to IR OUT of HDBaseT Receiver 1; IR IN 3 to HDBaseT Receiver 3, etc. The **IR IN ALL** port broadcasts to all receivers simultaneously. This lets you control remote displays from the equipment rack.

Connection: Connect IR blaster cable to matrix IR OUT port. Connect IR receiver cable at the display location to HDBaseT Receiver IR IN port.

IR CONTROL — HDBASET RECEIVER END (REMOTE → LOCAL)

IR signals received at a HDBaseT Receiver are forwarded to the matrix and **follow the video routing**. If HDBaseT Receiver 1 is showing input 3, then IR received at HDBaseT Receiver 1 is sent to matrix IR OUT 3 to control source 3. This lets viewers at each display control the source device feeding that display via IR remote.

Connection: Connect IR receiver cable to HDBaseT Receiver IR IN port. Connect IR blaster cable to matrix IR OUT port corresponding to the source device.

9. EDID Management

The MMX-8X8CAT-150M has **21 factory EDID presets**, **2 user-defined EDID modes** (upload custom .bin file via Web GUI), and **copy modes** that capture EDID directly from any connected display.

To set EDID via RS-232: Send `s edid in x from z!` (x = input 0–8, z = mode number 1–39). Send `r edid in 0!` to read all current EDID assignments.

To set EDID via Web GUI: Go to the Input page, select the input channel, choose from the preset dropdown or upload a .bin file for USER1/USER2 slots.

Mode #	EDID Description
1	1080p, Stereo Audio 2.0
2	1080p, Dolby/DTS 5.1
3	1080p, HD Audio 7.1
4	1080i, Stereo Audio 2.0
5	1080i, Dolby/DTS 5.1
6	1080i, HD Audio 7.1
7	3D, Stereo Audio 2.0
8	3D, Dolby/DTS 5.1
9	3D, HD Audio 7.1
10	4K2K30_444, Stereo Audio 2.0
11	4K2K30_444, Dolby/DTS 5.1
12	4K2K30_444, HD Audio 7.1
13	4K2K60_420, Stereo Audio 2.0
14	4K2K60_420, Dolby/DTS 5.1
15	4K2K60_420, HD Audio 7.1
16	4K2K60_444, Stereo Audio 2.0
17	4K2K60_444, Dolby/DTS 5.1
18	4K2K60_444, HD Audio 7.1
19	4K2K60, Stereo Audio 2.0 HDR
20	4K2K60, Dolby/DTS 5.1 HDR

10. Web GUI User Guide

The MMX-8X8CAT-150M can be fully controlled through a browser-based Web GUI over the network.

STEP 1 — CONNECT & CONFIGURE NETWORK

Connect the TCP/IP [RJ45] port on the matrix rear panel to your network switch using a standard Ethernet cable. Ensure the PC used for configuration is on the same network segment. The factory default IP address is **192.168.0.100**.

To find or change the current IP address via RS-232, send the command: `r ipconfig!`

STEP 2 — LOGIN

Open a web browser on your PC and navigate to the matrix IP address. The login page will appear. Select a username and enter the password. Default credentials:

USERNAME	DEFAULT PASSWORD
User	user
Admin	admin

Security Note: Change default passwords after initial setup — especially for Admin account.

WEB GUI PAGES

Page	Function
Status	**Displays product model, firmware version, and current network settings.**
Video	**Main routing control. Select input source for each output. Save, recall, and name routing presets (up to 8 presets, max 12 characters each).**
Input	**View input connection status, rename inputs, set EDID per input (select from preset list, upload custom EDID .bin file, or copy from a connected display). Download current EDID from any input.**
Output	**View output connection status, rename outputs, enable/disable output stream per port, check cable connection state.**
CEC	**Control CEC-enabled source devices (power, volume, transport) and displays (power on/off, volume, active source) directly from the browser.**
Network	**Configure IP mode (Static/DHCP), IP address, subnet mask, gateway, TCP/IP port, and Telnet port. Reset to default network settings. Modify User/Admin passwords.**
System	**Panel lock on/off, beep on/off, serial baud rate selection, firmware update (upload .bin file), factory reset, and device reboot.**

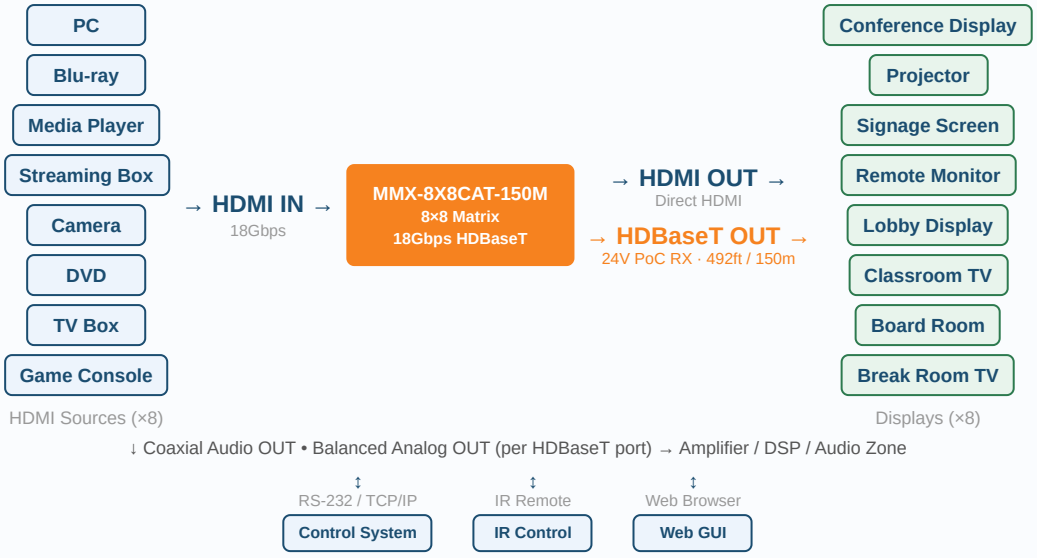
11. RS-232 Control Commands

Serial port: Baud rate: 115200 (default) • Data bits: 8 • Stop bits: 1 • Parity: None • TCP/IP port: 8000
Parameters: x = Parameter 1 • y = Parameter 2 • ! = Delimiter (required at end of every command)

Command	Function	Example	Feedback
Power & System			
`s power z!`	Power on/off (z=0 off, z=1 on)	`s power 1!`	`System Initializing... power on`
`r power!`	Get power state	`r power!`	`power on / power off`
`s reboot!`	Reboot device	`s reboot!`	`System Initializing...`
`s reset!`	Factory reset	`s reset!`	`System Initializing...`
`r type!`	Get device model	`r type!`	`Device model string`
`r fw version!`	Get firmware version	`r fw version!`	`MCU BOOT/APP, WEB GUI versions`
`r status!`	Get full device status	`r status!`	`All crosspoint, EDID, network info`
`s beep z!`	Beep on/off (z=0/1)	`s beep 1!`	`beep on`
`s lock z!`	Front panel lock (z=0 off, z=1 on)	`s lock 1!`	`panel button lock on`
`r lock!`	Get panel lock state	`r lock!`	`panel button lock on/off`
Video Routing			
`s in x av out y!`	Route input x to output y (x=1–8, y=0–8, 0=all)	`s in 1 av out 2!`	`input 1 -> output 2`
`r av out y!`	Get output y routing (y=0=all)	`r av out 0!`	`input x -> output y (all)`
`s hdmi y stream z!`	Enable/disable HDMI output y stream (z=0/1, y=0=all)	`s hdmi 1 stream 1!`	`Enable hdmi output 1 stream`
`s cat y stream z!`	Enable/disable CAT output y stream (z=0/1, y=0=all)	`s cat 1 stream 1!`	`Enable cat output 1 stream`
`r link in x!`	Get input x connection status (x=0=all)	`r link in 1!`	`hdmi input 1: connect`
`r link out y!`	Get output y connection status (y=0=all)	`r link out 1!`	`hdmi output 1: connect`
Presets			
`s save preset z!`	Save routing to preset z (z=1–8)	`s save preset 1!`	`save to preset 1`
`s recall preset z!`	Recall preset z	`s recall preset 1!`	`recall from preset 1`
`s clear preset z!`	Clear preset z	`s clear preset 1!`	`clear preset 1`
`r preset z!`	Get preset z info	`r preset 1!`	`video/audio crosspoint`
EDID			
`s edid in x from z!`	Set input x EDID to mode z (x=0=all, z=1–39)	`s edid in 1 from 18!`	`input 1 EDID: 4K2K60_444, HD Audio 7.1`
`r edid in x!`	Get input x EDID (x=0=all)	`r edid in 0!`	`input 1–8 EDID: ...`
CEC			
`s cec in x on/off!`	Power on/off input x via CEC (x=0=all)	`s cec in 1 on!`	`input 1 power on`
`s cec in x vol+/vol-!`	Volume up/down on input x	`s cec in 1 vol+!`	`input 1 volume up`
`s cec in x mute!`	Mute input x	`s cec in 1 mute!`	`input 1 volume mute`
`s cec in x play/pause/stop!`	Transport control on input x	`s cec in 1 play!`	`input 1 play operation`
`s cec hdmi out y on/off!`	Power on/off HDMI output y (y=0=all)	`s cec hdmi out 1 on!`	`hdmi output 1 power on`
`s cec hdmi out y active!`	Set active source on HDMI output y	`s cec hdmi out 1 active!`	`hdmi output 1 active source`
Network			
`r ipconfig!`	Get current IP configuration	`r ipconfig!`	`IP, Subnet, Gateway, TCP port, MAC`
`s ip mode z!`	Set IP mode (z=0 Static, z=1 DHCP)	`s ip mode 0!`	`Set IP mode: Static`
`s ip addr x.x.x.x!`	Set static IP address	`s ip addr 192.168.1.100!`	`Set IP address: 192.168.1.100`
`s subnet x.x.x.x!`	Set subnet mask	`s subnet 255.255.255.0!`	`Set subnet mask`
`s gateway x.x.x.x!`	Set gateway	`s gateway 192.168.1.1!`	`Set gateway`
`s tcp/ip port x!`	Set TCP/IP port (default 8000)	`s tcp/ip port 8000!`	`Set TCP/IP port: 8000`
`s net reboot!`	Reboot network module to apply IP changes	`s net reboot!`	`Network reboot... new IP config`
`rate xxx!`	Set RS-232 baud rate (9600–115200)	`s baud rate 115200!`	`Baudrate: 115200`

12. Application Example

8×8 HDBaseT Matrix — Multi-Source / Multi-Display with CAT Extension



Signal Flow: Connect 8 HDMI sources to IN 1–8. Route any source to any output via front panel, IR, RS-232, TCP/IP, or Web GUI. Each output delivers 4K60 4:4:4 with HDR via HDMI and simultaneously via HDBaseT cable to the PoC-powered HDBaseT Receiver up to 492ft (150m) away — no remote power supply required. Coaxial and balanced analog audio are available on every HDBaseT output port for amplifier/DSP integration. **Downscaler:** Enable per-output 4K→1080p downscaling for mixed-resolution environments. **IR:** Bi-directional IR — control displays from the rack, or control sources from the display location.