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ARCHITECTURAL AND ENGINEERING SPECIFICATION
PRODUCT: HDMI-TPX-TX209AK-V2

FUNCTIONAL OVERVIEW

The HDMI-TPX-TX209AK-V2 is an SDVoE-based TPX transmitter for point-to-point extension of an HDMI 2.0 signal over a single CATx (10GBase-T) TPX link to a compatible TPX receiver. It supports up to 4K60 4:4:4 video with ultra-low latency (five lines / under 8 ms) and HDCP 2.3. The unit includes a local HDMI loopback output, analog audio de-embedding, RS-232 transport, user Ethernet connectivity, and USB HID KVM extension via a Host USB-C connection.

VIDEO INPUT AND OUTPUT

- Video input (HDMI)
  - Connector: 19-pole HDMI Type A receptacle
  - Standards: DVI 1.0, HDMI 1.4, HDMI 2.0
  - Supported resolutions at 8 bits/color: up to 4096×2160@60Hz (4:4:4) or up to 3840×2160@60Hz (4:4:4)
  - Audio formats on HDMI input: 8 channel PCM; Dolby Digital, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos; DTS, DTS-HD Master Audio 7.1, WMA Pro
  - CEC support: Transparent
- Video output (TPX / SDVoE)
  - Connector: RJ45 female connector; Data rate: 10GBase-T; Compliance: SDVoE
  - HDCP compliance: HDCP 2.3
  - Transferred signals: Video, Audio, RS-232, Infrared, Ethernet, CEC
  - Color space: RGB, YCbCr
  - Video latency: 0 frame (five lines / under 8 ms)
  - Compression ratio: 1.4 to 1 (compression is applied only if the AV signal exceeds the maximum bandwidth offered by the HDMI 1.4 specification)
  - Supported resolutions at 8 bits/color: up to 4096×2160@60Hz (4:4:4) or up to 3840×2160@60Hz (4:4:4)

- Local HDMI output (loopback)
  - Connector: 19-pole HDMI Type A receptacle; Number of ports: 1
  - Standards: DVI 1.0, HDMI 1.4, HDMI 2.0
  - Supported resolutions at 8 bits/color: up to 4096×2160@60Hz (4:4:4) or up to 3840×2160@60Hz (4:4:4)
  - CEC support: Transparent

AUDIO CAPABILITIES

- Embedded HDMI audio transport over TPX
  - 8 channel PCM
  - Dolby Digital, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos
  - DTS, DTS-HD Master Audio 7.1, WMA Pro
- Analog audio de-embedding output
  - Connector: 5-pole Phoenix® connector; Number of ports: 1
  - Audio formats: 2-channel PCM
  - Signal transmission: Balanced signal
  - Sampling frequency: 48 kHz

POWERING

- Local power via 48V DC input (2-pole Phoenix® plug)
- Remote power over TPX: PoE PD + PSE (IEEE802.3af) (device can receive or send power to the connected remote device over the TPX line)

CONTROL

- BlueRiver AV Manager (SDVoE/BlueRiver control software)
- BlueRiver API control
  - TCI API (terminal application over TCP/IP)
  - REST API (via SDVoE Control Server)
- Ethernet ports (1GBase-T, full duplex with autodetect; number of connectors per unit: 2; not PoE-capable)
- RS-232 (3-pole Phoenix® connector; bi-directional serial communication)
- EDID button (short press: transparent vs learned EDID; long press: learn/store EDID from receiver output)
- Factory reset via hidden F button

- USB HID KVM (Host connection)
  - Host USB-C port receives USB data only (no AV transmission accepted); supports USB 2.0 standard only

GENERAL

- Dimensions: 100.4 W × 151.8 D × 26 H mm
- Weight: 482 g (1.06 lbs)
- Mounting options (compatibility)
  - 1U High Rack Shelf: compatible (4×)
  - UD Mounting Kit: compatible
  - UD Mounting Kit Double: compatible (2×)
  - UD Mounting Plate F110: compatible
  - UD Mounting Plate F120: compatible (2×)
- Compliance / LVD compatibility
- Compliance: CE, UKCA
- Electrical safety: EN 62368-1:2024
- EMC (emission): EN 55032:2015+A1:2020
- EMC (immunity): EN 55035:2017+A11:2020
- RoHS: EN 63000:2018
- Supplied accessories
  - TPX series extender
  - Safety & Warranty Info; Quick Start Guide
  - 48V DC adaptor with interchangeable plugs
  - Phoenix® Combicon 3-pole connector
  - Phoenix® Combicon 5-pole connector
- Warranty period: 3 years
- Cooling: Passive
- Packaging: the product has full paper / green packaging

DOCUMENT REVISION HISTORY

Document	Release Date	Changes	Checked by
v1	2026-07-28	Initial version	Tamas Forgacs