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ARCHITECTURAL AND ENGINEERING SPECIFICATION

Taurus DCX-3x1-TPX-TX10

3x1 USB-C and HDMI Matrix Switcher – 10G SDVoE based Direct-Link Transmitter

FUNCTIONAL OVERVIEW

The device shall be a compact USB-C and HDMI transmitter switcher designed for integration into BYOD environments. It shall provide seamless video, audio and control signal extension over a single CAT6A cable, up to 100 meters using Lightware's TPX (10G SDVoE-based) direct link technology. The switcher transmitter shall support three selectable local inputs: one USB-C and two HDMI, with either automatic or manual input switching. Configuration and monitoring shall be possible through the Web GUI - the Lightware Device Controller (LDC)*, via the Lightware Advanced Room Automation (LARA) or with the Lightware Advanced Room Automation Wizard (LARA Wizard).

*(LDC is available both as Web application and in desktop version for Windows and MacOS)

VIDEO

The video switcher transmitter shall:

- support HDMI 2.0 signal formats.
- have two HDMI input ports, one USB-C (DisplayPort Alternate Mode) input port, one HDMI 2.0 output and one TPX (10G SDVoE based direct-link) transmitter port.
- provide independent switching of its own three video input signals, or any additional hosts connected on the receiver input side.
- support video content and all standard resolutions and frequencies as specified under HDMI up to 1920x1200 50/60Hz, or 4096x2160 60Hz (UHD, 4K). 3840x2160 resolution is supported with default Lightware EDID.
- support 5K video content with 5120x2160 30Hz 4:4:4 or with 60Hz 4:2:0.
- be compatible with a 120Hz 3D video signal.
- support HDCP 1.4 and 2.2 content protection standards and provide per-port HDCP authentication diagnostics via the Web GUI (LDC) or via the LW3 protocol.
- allow HDCP to be enabled or disabled on both the HDMI and USB-C inputs and provide real-time status indicators for each HDCP handshake.
- feature pixel accurate reclocking technology to restore signal integrity by eliminating jitter and preserving original timing and color data.
- support EDID management for customizable EDID tables.

- provide the ability to import and export EDID and preset files from/to a PC, and store at least 100 EDID resolutions.
- allow users to create custom EDID resolutions.

USB-C INPUT

The “IN 1” port shall:

- provide DisplayPort video connectivity to the connected source device.
- be able to power the connected source device with up to 100W.

AUDIO

The video switcher transmitter shall:

- have a balanced analog audio output port for stereo audio de-embedding from any of the active video sources.
- support the following signal formats: 7.1 HDMI embedded audio, Dolby TrueHD, and DTS-HD Master Audio 7.1 formats.
- provide adjustable volume on the analog output port.

POWER

The video switcher transmitter shall:

- be powered by an external 160W power supply with an IEC C14 mains inlet, supporting 100–240 VAC at 50/60 Hz.

ETHERNET

The video switcher transmitter shall:

- have one RJ45-type Ethernet connector (up to 1 Gbps speed).

SECURITY

The video switcher transmitter shall:

- be able to support 802.1X authentication.
- allow VLAN tagging for logical network separation.
- be capable of network separation between corporate network and user network.
- support port-level Ethernet control, including enable/disable functions.
- support HTTPS and secure WebSocket (WSS) protocols to enable encrypted web interface access and WebSocket-based control and monitoring.
- support secure REST API access with username and password authentication.
- negotiate USB port roles via USB-C Power Delivery protocol to prevent unauthorized device connections.

- include physical security lock for front panel buttons.
- require a multi-step procedure for factory reset to avoid unauthorized erasure.
- remote service port disablement to reduce exposed attack surfaces.

CONTROL

The video switcher transmitter shall:

- support Lightware Advanced Room Automation (LARA), a built-in room automation tool enabling event-based control without the need for external processors.
- include an integrated crosspoint routing engine, capable of independently switching video, audio, and control signals
- provide an RJ45 Ethernet port for control.
- be able to send predefined TCP commands to attached compatible devices.
- be able to recognize predefined incoming RS232/TCP commands as a condition and execute switching, sending RS232/TCP or CEC command sequences on reception.
- be able to recognize input video signal changes as a condition and execute switching, and send RS232/TCP or CEC command sequences on change.
- provide one USB-A and one USB mini-B port for service functions.
- provide front panel LED indicators for power status / video signal presence, and physical buttons for source selection. Rear panel indicators shall include Ethernet link activity status.
- support Consumer Electronics Control (CEC) functionality over the HDMI output.
- allow CEC commands to be sent manually or automatically based on signal presence, USB connection, or mode change.
- support bulk device configuration and management through the LDC software. This capability shall enable managing multiple devices concurrently, ensuring consistent configuration across rooms, zones, or entire deployments.
- support a secure and documented REST API for integration with third-party control and automation systems. The API shall use JSON over HTTPS to provide IP-based access for configuration and real-time control of key system functions.
- provide access to a Web GUI (LDC), allowing configuration of event conditions and actions without programming skills, while also supporting custom JavaScript coding for advanced control requirements.
- provide a browser-based Touch Panel interface for the users to access room control functions.

GENERAL

The video switcher shall:

- have full paper / green packaging.
- be housed in a compact metal enclosure measuring 246 mm (W) x 140.3 mm (D) x 26 mm (H)
- be mountable under tables or inside furniture (the UD Mounting Plate kits are sold separately)
- be mountable in racks (1U rack shelves are sold separately)
- have passive, fanless and noiseless cooling.
- comply with CE, FCC Class A, UKCA, RoHS
- have a warranty of 3 years.
- be recommended to be used with the following TPX receivers:
    - HDMI-TPX-RX106
    - HDMI-TPX-RX107
    - HDMI-TPX-RX107D
    - HDMI-TPX-RX107A-SR
    - HDMI-TPX-RX209AK
- be packaged together with the following equipment:
    - 24V power adaptor with IEC power cable
    - Phoenix® Combicon 5-pole male Connector
    - Safety and Warranty Info, Quick Start Guide
    - Type C (USB-C) to Type C (USB-C) Cable, 1m
    - 2 pcs. of M3x4 flat head screw

Document revision history

Document	Release Date	Changes	Checked by
Rev. 1.0	27 Jan 2026	Initial version	Nikolett Keindl
Rev. 1.1	28 Febr 2026	Minor updates	Márk Hilóczki
Rev. 1.2	26 May 2026	Minor updates	Viktor Bruzsa