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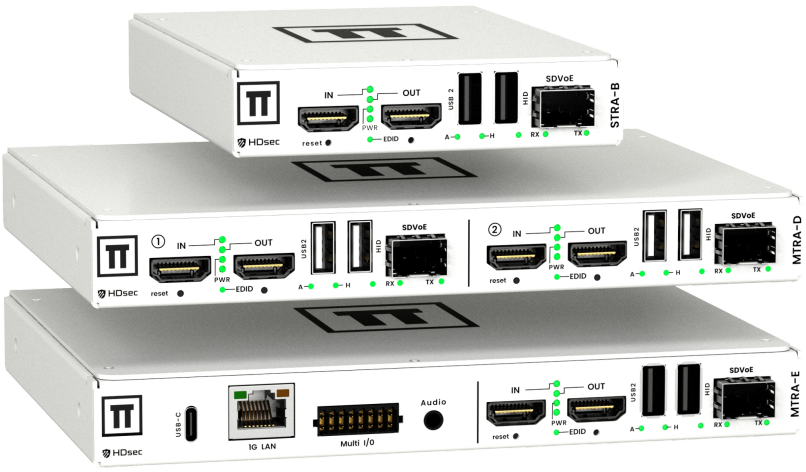

TT-SDVoE-STRA and TT-SDVoE-MTRA

Stand-alone SDVoE transceivers with Hardware Defined Security

Product description

TT-SDVoE-STRA and TT-SDVoE-MTRA are secure Audio/Video/USB **SDVoE transceivers** that can work both as an encoder and as a decoder at the same time, fulfilling an almost limitless range of missions. **TT-SDVoE-STRA** and **TT-SDVoE-MTRA** can also work in a point-to-point connection, together or with another SDVoE device without any 10Gb/s switch

TT-SDVoE-STRA and TT-SDVoE-MTRA feature a unique **Hardware Defined Security (HDSec)**, in order to better protect customer sources and environment from malicious attacks.
TT-SDVoE-STRA and TT-SDVoE-MTRA both embed the **latest generation ASIC**, that allows the management of high quality 4K signals with no latency, as well as the latest Semtech FPGA for USB 2.0 management, featuring active monitoring and advanced network management. **Interoperable** with any brand of SDVoE end-point, TT-SDVoE-STRA and TT-SDVoE-MTRA eliminate proprietary constraints, offering customers the benefit of a dynamic and ever evolving ecosystem.

Altogether with **4K/60Hz 4:4:4** support, **zero latency**, **seamless switching** and **advanced security** features, TT-SDVoE-STRA and TT-SDVoE-MTRA will fulfill any mission-critical applications including control room, government, healthcare, corporate and education.

Innovative features

- ❏ **SDVoE transceiver:** both encoder and decoder at the same time with 4K/60Hz 4:4:4, real time, zero latency, and seamless switching
- ❏ **Hardware Defined Security:** support increments of security features through Hardware settings that cannot be overridden remotely
- ❏ **USB (both HID and 2.0) support:** ability to connect keyboard and mouse (KVM) or any class of USB device
- ❏ **Maximum quality video over IP transmission:** the 10Gb/s Ethernet network guarantees the transport of 4K signals without compression on the visible signal
- ❏ **Low power consumption:** Based on ASIC, which consumes 80% less power than FPGA.
- ❏ **Data security** The transmission of information is encrypted according to the AES-128 standard
- ❏ **Medical grade certification** (IEC EN60601)

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Hardware Defined Security (HDsec)

An additional non overridable level of security

In today's digital landscape, data security has become a critical concern for individuals, businesses, and governments alike. SDVoE intrinsically offers maximum system security, among which the encryption of communication commands (SSL/TLS), and of data (AES128 for all; AES256 for USB HID) and for the authentication mechanism of End Points on the network (IEEE 802.1X, EAP-TLS). In order to further protect the client's source data, a system of **hardware switches** allows you to configure **TT-SDVoE-STRA and TT-SDVoE-MTRA** Transceiver to better isolate the sources and destinations, acting like a data diode, although not limited to this function.

The benefits are numerous:

- Being performed by hardware, this setting **cannot be overridden remotely** or via software.
- The settings can be configured only by whom has a **physical access** to the hardware during the installation
- The settings are **easily verified** with simple direct visual inspection, giving you the certainty of the safety set-up for the functions protected by the physical state, without having to rely on other analysis systems.

Available settings:

EDID	Continuous reading / Secured pass through / Predefined	*Prevents bi-directional communication via the EDID channel : the Secured pass through allows setting the EDID only once when the user presses the EDID button.*
Internal switching	Encoder / Transceiver 1, 2, 3	*Allows to define the internal routing of the Transceiver card, towards the HDMI output, the Ledwall or the SDVoE channel*
USB HID	No communication/ Monodirectionnal for Host/ Monodirectionnal for Device/ Bi-directionnal	*Allowing user inputs (e.g., keyboard and mouse commands) to flow into the secure system while preventing information leaks*
USB 2.0	Various configurations	*Various configurations to block or allow a specific class or brand of devices*
UART communication with AVP	No communication/TX only/RX only/TX and RX	*Cut the communication channel with AVP. Prevent from any remote update of the MCU firmware*
CEC	Disable the CEC *(Consumer Electronics Control)* channel on the HDMI in and out	*Prevent from any malicious attack through the CEC channel of HDMI*

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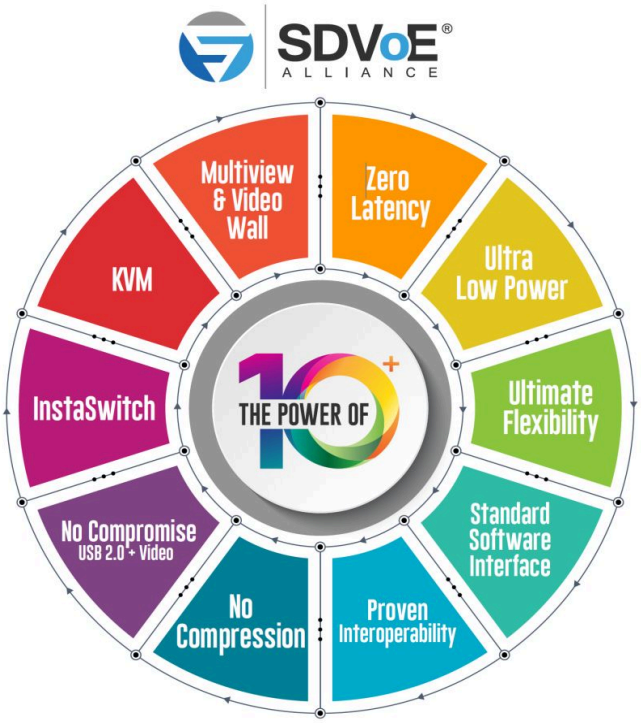
SDVoE Technology

The matrix transformed

SDVoE technology, "the transformed matrix", is a solution to replace a traditional high quality audiovisual distribution system based on video wall converters, matrixes and processors, without compression and without latency, with a new futureproof over IP system based on an Ethernet network 10Gb.



This solution is ideal for all applications that need high quality signals with no latency. Control rooms, high-profile meeting rooms, board rooms, auditoriums, conference rooms and medical applications are all applications in which the benefits of this technology are greatly appreciated.
In addition to video signals SDVoE can also carry audio, USB as well as ethernet and RS232.

In addition, **SDVoE** offers **additional features**:

- **Seamless Switching**: Compared to the Matrix switch that requires signal resynchronization, SDVoE switching is seamless.
- **SDVoE** can create video walls, which means it can scale an image across multiple displays and genlock multiple decoders
- **SDVoE** can also act as a multiviewer: Picture-In-Picture with the decoder itself. In the world of the Matrix Switch, this requires an additional video processor.

Uniquely interoperable

SDVoE is therefore a complete ecosystem: over 50 member companies offering more than 700 interoperable SDVoE products: any encoder can work with any third-party decoder and can work on any 10Gb/s network using the IEEE specification.

Safe

The SDVoE platform secures encrypted source content by applying AES-128 encryption to ensure it remains secure in the system.

Future proof

An SDVoE is often cheaper to buy, but also much cheaper to maintain thanks to easy upgrades: if one needs more inputs or outputs nodes, that just means adding a few encoders or decoders. It is also possible to converge computer networks on the 10G SDVoE ready network.

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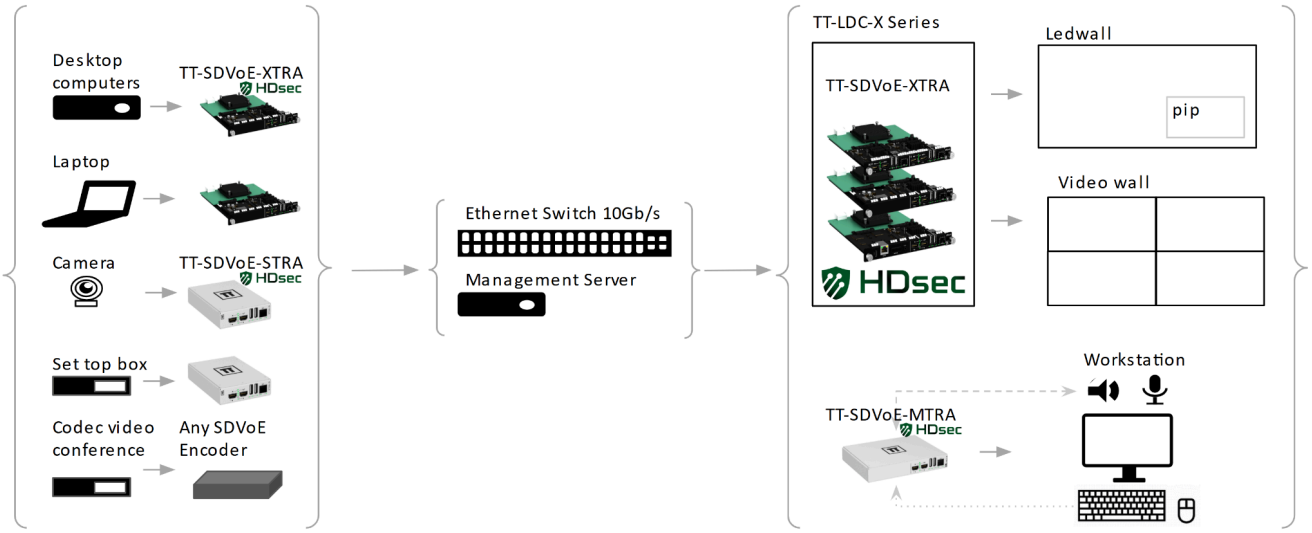
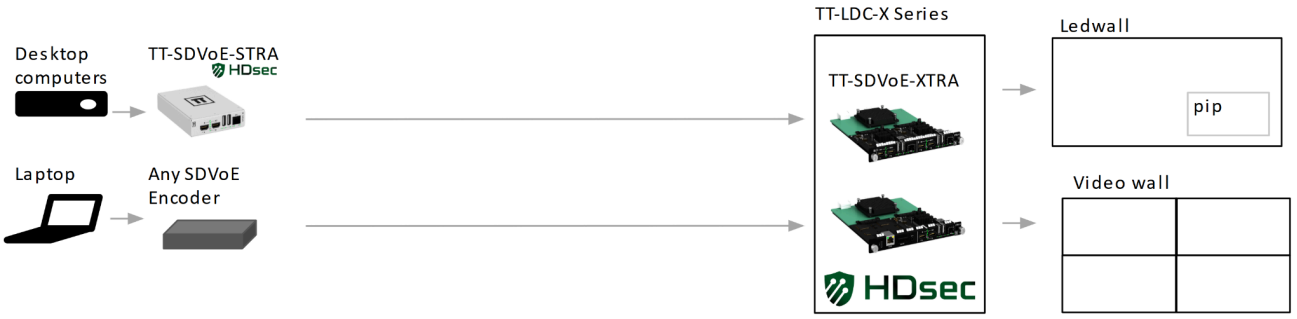
Functional diagram with TT-SDVoE-STRA, -MTRA & -XTRA



Multi-endpoint switchable architecture



Point-to-point connection

Product pictures

TT-SDVoE-STRA	*TT-SDVoE-MTRA-B*	*TT-SDVoE-MTRA-E*

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Technical specifications

TT-SDVoE-STRA-B

HDMI Input	HDMI 2.0 up to 4K/60Hz 4:4:4
Audio embedded	8 channels 24bit, 48KHz
USB HID	1x USB-A
Certifications	CE EN60601 (medical grade) RoHS
Power consumption	<10W
Led Status	Input, Output, Status, Power, EDID, 2x USB 2.0, USB HID, 10G RX, 10G TX
Cooling	Fanless
Hardware Security	HDsec
Options	USB HID Filtering

HDMI output	HDMI 2.0 up to 4K/60Hz 4:4:4
Audio embedded	8 channels 24bit, 48KHz
10Gb Ethernet	SFP+ x1 (RJ45 or optical fiber)
Encryption	AES 128 bit
Chip for SDVoE	ASIC Semtech AVP2000
External button	Reset/Info, EDID mode selection
Dimensions	105.4 mm × 141.7 mm × 24 mm

TT-SDVoE-MTRA-B

HDMI Input	HDMI 2.0 up to 4K/60Hz 4:4:4
Audio embedded	8 channels 24bit, 48KHz
USB HID	1x USB-A
USB 2.0	1x USB-A (Optional)
Chip for USB 2.0	FPGA Semtech UEX1000 (Optional)
Led Status	Input, Output, Status, Power, EDID, 2x USB 2.0, USB HID, 10G RX, 10G TX
Cooling	Fanless
Hardware Security	HDsec
Options	USB 2.0 USB HID Filtering

HDMI output	HDMI 2.0 up to 4K/60Hz 4:4:4
Audio embedded	8 channels 24bit, 48KHz
10Gb Ethernet	SFP+ x1 (RJ45 or optical fiber)
Encryption	AES 128 bit
Chip for SDVoE	ASIC Semtech AVP2000
External button	Reset/Info, EDID mode selection
Dimensions	186.4 mm × 141.7 mm × 24 mm
Power consumption	<10W
Certifications	CE EN60601 (medical grade) RoHS

TT-SDVoE-MTRA-D

HDMI Input	2x HDMI 2.0 up to 4K/60Hz 4:4:4
Audio embedded	8 channels 24bit, 48KHz
USB HID	2x USB-A
External button	2x Reset/Info, EDID mode selection
Led Status	2x Input, Output, Status, Power, EDID, USB HID, 10G RX, 10G TX
Cooling	Fanless
Hardware Security	HDsec
Options	USB HID Filtering

HDMI output	2x HDMI 2.0 up to 4K/60Hz 4:4:4
Audio embedded	8 channels 24bit, 48KHz
10Gb Ethernet	2x SFP+ x1 (RJ45 or optical fiber)
Encryption	AES 128 bit
Chip for SDVoE	ASIC Semtech AVP2000
Dimensions	186.4 mm × 141.7 mm × 24 mm
Power consumption	<10W
Certifications	CE EN60601 (medical grade)

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HDMI Input	2x HDMI 2.0 up to 4K/60Hz 4:4:4
Audio embedded	8 channels 24bit, 48KHz
USB HID	2x USB-A
External button	2x Reset/Info, EDID mode selection

HDMI output	2x HDMI 2.0 up to 4K/60Hz 4:4:4
Audio embedded	8 channels 24bit, 48KHz
10Gb Ethernet	2x SFP+ x1 (RJ45 or optical fiber)
Encryption	AES 128 bit

TT-SDVoE-MTRA-E (Preliminary, subject to change)

HDMI Input	HDMI 2.0 up to 4K/60Hz 4:4:4
Audio embedded	8 channels 24bit, 48KHz
USB HID	1x USB-A
USB 2.0	1x USB-A
Chip for USB 2.0	FPGA Semtech UEX1000 (Optional)
USB-C	1x USB-C
Ethernet 1G	1x RJ45
Control	RS232, IR, GPIO
Power consumption	<10W
Cooling	Fanless
Hardware Security	HDsec
Options	USB HID Filtering

HDMI output	HDMI 2.0 up to 4K/60Hz 4:4:4
Audio embedded	8 channels 24bit, 48KHz
10Gb Ethernet	SFP+ x1 (RJ45 or optical fiber)
Encryption	AES 128 bit
Chip for SDVoE	ASIC Semtech AVP2000
Unbalanced Audio	TRRS Jack 3.5mm L/R audio and microphone
Balanced Audio	Multi I/O connector L/R audio and microphone
Led Status	Input, Output, Status, Power, EDID, 2x USB 2.0, USB HID, 10G RX, 10G TX
External button	Reset/Info, EDID mode selection
Dimensions	186.4 mm × 141.7 mm × 24 mm
Certifications	CE EN60601 (medical grade) RoHS

Product code

Base product	TT-SDVoE-STRA-B	Base product with single SDVoE Transceiver
Options	/—	Base product
	/F–	Addition of HID filtering card
	/.../TB	Tempest Level B
	/.../TC	Tempest Level C
Base product	TT-SDVoE-MTRA-B	Base product with single SDVoE Transceiver
Options	/—	Base product
	/-U-	Addition of USB 2.0 card
	/F–	Addition of HID filtering card
	/FU-	Addition of USB 2.0 and HID filtering
Base product	TT-SDVoE-MTRA-D	Base product with dual SDVoE Transceiver
Options	/—	Base product, connected to H Series'bus
	/F–	Addition of HID filtering card
	/.../TB	Tempest Level B

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	/.../TC	Tempest Level C
Base product	TT-SDVoE-XTRA-E	Base product with single SDVoE Transceiver and Expansion card
Options	/—	Base product
	/F–	Addition of HID filtering card
	/.../TB	Tempest Level B
	/.../TC	Tempest Level C

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