Throughout PESA’s long tenure, our customers and partners have guided us to create the world’s best audio and video products. With today’s attention focused on OPEX budgets, PESA knows that the business climate is changing, so we stay close to customers, providing value where we can make the biggest difference.

PESA has been involved in the Media markets for over 46 years. While our roots began in the Broadcast television industry, our current focus is with the U.S. Military and Government agencies who demand quality audio and video in settings such as Command and Control (C2) rooms. PESA is now leading C2 markets into next generation IP networks with new products that extend flexibility while taking security to the top using the latest FIPS 140-2 Level 3 encryption technologies.
Secura Media Manager is the centrepiece for the Secura solution portfolio and is based on the PERC3000 platform. The Secura Media Manager (SMM) contains several components that combine to make a fully functional system. The Secura Media Manager resides on a server provided by PESA with all the necessary components installed and configured.

Secura Media Manager consists of six key elements that work together to provide a fully-managed, secure IP media system for Command and Control (C2) applications and media distribution systems. Other services, such as a registration service for IP endpoints, set-up software, security modules, control surface integration and network traffic facilitators, are all integrated into the Secura Media Manager.

The PESA Ethernet Router Control has been at the core of the PESA control system for several years and continues its proud heritage in the era of IP control. The PERC3000 integrates various functions for connecting IP sources and destinations.

Cattrax is the PESA configuration tool that configures, defines and maps networked signals so that Secura transmitter and receiver endpoints can be joined. In addition, the Cattrax system configures other devices and services such as panels and control surfaces.

The XY Controller refers to traditional XY matrix networks that work with sources and destinations. This has been the thinking among users for several decades and continues in the new Secura Network System so that endpoints can be managed as they have always been managed.

PESA's Secura Software Defined Network (SDN) engine adds the ability to scale a network to connect thousands of endpoints and manages leaf and spine network switches. This is a critical component for medium and large network fabric.

The PESA FIPS 140-2 encryption brings military-grade security to audio and video essence media. Secura A/V over IP and KVM endpoints support a high level of media encryption in accordance with the standards published by the National Institute of Standards and Technology (NIST). The PESA FIPS 140-2 supports Level 3 protection.
Scalable Media Solutions

1. <144 end points

2. <1,152* end points

3. >3,072* end points

*Approximately

CONTROL SURFACE ACCESS

PESA can provide several options for physical control of media. Both hardware-driven mechanical button panels and software touch panels may be incorporated into a system, which allow authorized operators to view and select certain content. Authorization for individuals may be via a CAC (Conditional Access Card) or Token Key device, for example. Secura Media Manager provides the interface to the control surface options, while PESA’s case hardened encryption and FIPS 140-2 Level 3 protects your content. Access can also be granted to 3rd party devices by PESA’s propriety control protocol to provide more flexibility and allow integration into existing systems within your establishment.
NETWORK ARCHITECTURE

1. <144 end points
   - 3 x 48 port 1G Sx
   - No SDN required
   - Expandable with existing Sx's
   - Separate essence & control if required

2. <1,152 end points
   - 3 to 24 x 48 port - 1G Sx
   - 1 x 48 port 25G Sx
   - SDN required
   - Expandable with existing Sx's
   - Separate essence & control if required

3. >3,072 end points
   - 3 x 48 port - 1G Sx
   - >1 x 32 port 100G Sx
   - 1 x 48 port 25G Sx
   - SDN required
   - Expandable with existing Sx's
   - Separate essence & control if required
The Secura System remains behind the VDI’s Network connecting to only authorized Thin/Zero Clients. In this architecture, the operation remains in a closed environment assuring no access other than the Thin Client to secure networks. Access to the Thin Client is configured within the Secura Media Manager and leverages the resources of the Thin Client and delivers FIPS 140-2 Level 3 encryption to any position on the Watch Floor as determined by the mission. In this solution, resources are allocated by the needs of the Watch Floor and can be reconfigured in minutes. Illustrated below are examples of both single, dual and quad monitors from Thin Clients.
The Secura System is flexible enough to provide isolation to secure networks as well as defining a closed media environment, mixing both Audio and Video sources while also controlling access to authorized Thin Clients. This leverages the ability to send any audio, video and USB connection in any split allocation to any authorized location on the Watch Floor. Media signals are protected using a FIPS 140-2 Level 3 encryption to insure maximum protection of signals to only authorized locations. Here video cameras, microphones, receivers and Thin Clients make up a complete and secure matrix to suit the needs of a particular mission.
SECURA SOLUTION 3

The Secura System works for any audio and video signal from any authorized device to create a closed and secure A/V and USB mix using Thin Clients, with other audio and video sources delivered as a FIPS 140-2 Level 3 encrypted signal. Particularly for Military and government access to high security content for viewing by authorized personnel by use of CAC or Token key devices.

Secure your Content with FIPS 140-2 Level 3
The Secura System maintains maximum security by dividing audio, video and USB into essence signals apart from control signals. In this manner, essence and control are separated so that maximum security is maintained within two closed networks. FIPS 140-2 Level 3 is used for audio and video multicast IP flows while IPSec is used for unicast USB and control flows.
The Secura System maintains the security of internal networks by remaining behind red and black Thin Clients. In this manner, the Secura System network remains separate and is only connected to authorized Thin Clients. In doing so, any resource from the Thin Clients can be positioned in any location on the floor to maintain maximum flexibility but maintaining the integrity of internal networks.

Client flexibility, Anywhere, Anytime
The PESA Secura family of products has one main feature: Military-grade security. Secura units can carry HDMI 2.0 4K video, Audio, and Ancillary Data. PESA's A/V over IP solutions can carry all these critical media signals using Arista network COTS (Commercial Off-The-Shelf) enterprise switches. The PESA Secura A/V over IP uses FIPS 140-2 Level 3 encryption making it the kind of case-hardened security our Military customers expect. It's no wonder why more Military, Government and Corporations choose PESA for critical Command and Control environments.

**TYPICAL A/V OVER IP SYSTEM**

**FEATURES**

- **FIPS 140-2 Level 3**
- **1GB/s payloads using JPEG light compression for extremely low latency (<15ms)**
- **PESA's exclusive Secura Control Suite for IP configuration/control, endpoint management, and virtual matrix KVM routing**
- **HDMI audio including Dolby, AES67, and others**
- **KVM control using PESA's suite of router control panels or most third party controllers including Crestron/AMX**
- **Video scaling**

**Specifications**

- **AV Connectivity**: HDMI 2.0, compliant with HDCP 1.4/2.2
- **Video format**: All resolutions and frame rates up to 4096x2160 at 60fps 8-bit, 10-bit and 12-bit, 4:4:4, 4:2:2 and 4:2:0 HDR10 and HLG
- **Max video format**: 4K60 4:4:4
- **Video codec**: JPEG
- **Video processing**: Upscaler/downscaler at receive side Cropping, padding, logo and text insertion
- **Audio**: Up to 8 channels, all sampling rates including High Bit-Rate Audio (HBR) LPCM, DTS, and Dolby formats (Incl. Atmos) External analog audio embedding/de-embedding AES67
- **Latency**: 15 ms end-to-end (encoder + decoder)
- **Security**: FIPS 140-2 Level 3 Encryption
- **Reliability**: Forward Error Correction (FEC) and Quality of Service (QoS)
- **Clock Synchronization**: Precision Time Protocol (PTP) IEEE 1588-2008, slave/master
- **AV transport protocols**: IP (unicast/multicast), UDP, RTP, RTCP, SAP/SDP, SMPTET2110
- **Network protocols**: DHCP, mDNS, IGMP, TCP/IP, ARP

**Configuration**

- **Network-based**: Web-based configuration manager (GUI), JSON API over WebSocket, Secure Remote System console
- **COM port**: Command line interface
- **Upgrade**: Firmware field upgradable

**Interfaces**

- **Audio/Video**: HDMI 2.0 Input (encoder only)
- **HDMI 2.0 Output (decoder only)**
- **3.5mm jack (TRS) analog audio input (encoder only), and output (decoder only)**
- **Communication**: 1Gbps Ethernet RJ45, Serial RS-232
- **Others**: 12C, SPI, GPIO for additional interfaces (LED, IR, button, display...)

**Other specifications**

- **Temperature**: Operating: 0° C to +55° C
- **Dimensions**: 200 x 116 x 23 mm (7.9 x 4.6 x 0.9 in)
- **Power supply**: 12 V DC – Power connector
- **Power over Ethernet**: PoE+ (IEEE 802.3at)
- **Power consumption**: 15 W typical
The PESA Secura family of products has one main feature: Military-grade security. Secura units can carry HDMI 2.0 4K/60 video, Audio, and Ancillary Data. For KVM applications, secure USB is added to connect HID devices such as keyboards and mice as well as USB CAC and Token readers. PESA's KVM and A/V over IP solutions can transport all of these critical media signals using Arista network COTS (Commercial Off-The-Shelf) enterprise switches. The PESA Secura KVM uses FIPS 140-2 Level 3 encryption making it the kind of case-hardened security our Military customers expect. It’s no wonder why more Military, Government and Corporations choose PESA for critical Command and Control environments.

TYPICAL KVM SYSTEM

**Specifications**

- **AV Connectivity**: HDMI 2.0, compliant with HDCP 1.4/2.2
- **Video format**: All resolutions and frame rates up to 4096x2160 at 60fps 8-bit, 10-bit and 12-bit; 4:4:4, 4:2:2 and 4:2:0 HDR10 and HLG
- **Max video format**: 4K60 4:4:4
- **Video codec**: JPEG
- **Video processing**: Upscaler/downscaler at receive side Cropping, padding, logo and text insertion
- **Audio**: Up to 8 channels, all sampling rates including High Bit-Rate Audio (HBR) LPCM, DTS, and Dolby formats (incl. Atmos) External analog audio embedding/de-embedding AES67
- **Latency**: 15 ms end-to-end (encoder + decoder)
- **Security**: FIPS 140-2 Level 3 Encryption
- **Reliability**: Forward Error Correction (FEC) and Quality of Service (QoS)
- **Clock Synchronization**: Precision Time Protocol (PTP) IEEE 1588-2008, slave/master
- **AV transport protocols**: IP (unicast/multicast), UDP, RTP, RTCP, SAP/SDP, SMPTE ST 2110
- **Network protocols**: DHCP, mDNS, IGMP, TCP/IP, ARP

**Configuration**

- **Network-based**: Web-based configuration manager (GUI) JSON API over WebSocket, Secure Remote System console
- **COM port**: Command line interface
- **Upgrade**: Firmware field upgradable

**Interfaces**

- **Audio/Video**: HDMI 2.0 Input (encoder only)
  - HDMI 2.0 Output (decoder only)
  - 3.5mm jack (TRS) analog audio input (encoder only), and output (decoder only)
- **Communication**: 1Gb Ethernet RJ45, Serial RS-232
- **Others**: I2C, SPI, GPIO for additional interfaces (LED, IR, button, display...)

**Other specifications**

- **Temperature**: Operating: 0°C to +55°C
- **Dimensions**: 200 x 116 x 23 mm (7.9 x 4.6 x 0.9 in)
- **Power supply**: 12 V DC – Power connector
- **Power over Ethernet**: PoE+ (IEEE 802.3at)
- **Power consumption**: 15 W typical
PESA has been a leading provider of secure professional-grade audio and video products for over 46 years. Video Distribution Systems (VDS), Routers, Signal processing devices, and Control & Management systems have all been a part of the complete PESA system portfolio. PESA continues to lead in developing innovative IP media solutions with the new Secura® brand of Media Management and secure Endpoints. Secura products ensure military-grade protection for mission critical media signals for military, government, corporate and broadcast environments. PESA proudly supports our many customers with a 24/7/365 round the clock technical support team. PESA is located in Huntsville, Alabama with regional sales offices throughout North America, China, Europe and the Middle East.

Leading agencies in the world use PESA systems for their critical applications. PESA solutions are chosen for their Trusted Advisory role, Quality, Technology and Support. PESA offers a complete end-to-end package.

**Why choose PESA?**

ABOUT PESA

PESA has been a leading provider of secure professional-grade audio and video products for over 46 years. Video Distribution Systems (VDS), Routers, Signal processing devices, and Control & Management systems have all been a part of the complete PESA system portfolio. PESA continues to lead in developing innovative IP media solutions with the new Secura® brand of Media Management and secure Endpoints. Secura products ensure military-grade protection for mission critical media signals for military, government, corporate and broadcast environments. PESA proudly supports our many customers with a 24/7/365 round the clock technical support team. PESA is located in Huntsville, Alabama with regional sales offices throughout North America, China, Europe and the Middle East.

Learn more about PESA on our website at [http://www.pesa.com](http://www.pesa.com) and follow us on Twitter: @PESA_ONLINE and LinkedIn: PESA.