

High Speed Verifier for Turnkey (HSV-T) Applications

Protocol Filtering Diode

Datasheet

Key Benefits:

- Hardware Verifier for data passing unidirectionally.
- Optional physical enforcement of unidirectional data transfer.
- Multiple streams verified concurrently.
- Supports UDP and UDP Multicast packets up to jumbo frame 8K in size.
- Scale-out for higher throughput.
- Connects two separate networks.
- Configuration and monitoring via USB-C interface.

Verification in Hardware Logic

HSV-T is an implementation of Everfox's High Speed Verifier that is designed for use in turnkey applications, where it is embedded in customer equipment. It can be used to embed high assurance verification into custom cross domain systems that are installed and configured at base prior to deployment. The HSV-T is designed to meet NCDSMO Protocol Filtering Diode requirements for One Way Transfer (OWT).

Hardware Logic Protocol Break

Data passes into and out of HSV-T using standard network protocols that are handled in software by protocol proxies. The proxies run on network processors associated with each network interface. Data is streamed through the verifiers using a simple protocol, implemented by the proxies and the logic, so no UDP or IP protocols pass across the verifier and the internal logic is enforcing a protocol break.

- No data bypasses verification.
- Application layer treated like payload data.
- No software needs to be trusted to ensure verification is not bypassed

Hardware Logic Protocol Break

Each HSV-T has a specialised micro-controller (security processor) for managing the device. The controller authenticates configuration data and firmware/software updates. It also controls the start-up sequence to ensure the device is always in a secure state.

- Configuration data, software and firmware signatures are validated before being applied.
- Secure boot of network processor software and verifier logic controlled by security processor.
- External interfaces disabled in configuration, update, and initialization modes by security processor.

Device Management

HSV-T is managed via two USB-C ports – one internal and one presented on the face plate – that provide a dedicated management interface.

- Software and firmware updates uploaded via internal USB port.
- Configuration and Monitoring via external USB port.

Everfox HSV-T

| Technical Specifications | |
|--------------------------|--|
| Unit Size | Height: 68.9mm (2.731in.) x Width: 167.65mm (6.600in.) x Depth: 20.32mm (0.8in.) |
| Power Consumption | 18W (when processors not passing traffic) 20W (when handling full traffic load) |
| Battery Life | 10 years (CR2012) |
| Verifier Throughput | 1Gbit/sec |

Form Factor

HSV-T is a Low-Profile/Slim PCIe card with dual RJ45 copper 1GbE network interfaces. The PCI bus connector is used only for mechanical restraint and electrical power. Data only passes through the external Ethernet connections. A standalone PCIe riser can be used to power the card. HSV-T has an integral heat sink which requires airflow of 35.7m³/h from the chassis.

Performance

Throughput of the HSV-T depends on the protocols used to get data in and out of it. Simple types are verified at line speed, but with smaller packet sizes or complex protocols the maximum throughput may not be reached.