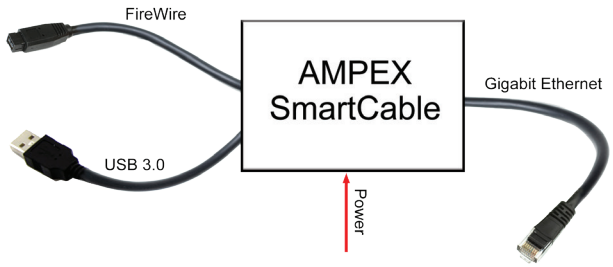
SmartCable Intelligent Download Interface

Product Description



The SmartCable is the intelligent bridge between rugged memory modules and a download station. Some hardware interfaces such as IEEE 1394/FireWire are becoming hard-to-find or obsolete on new laptops and servers, while others such as USB are frequently forbidden by security policy from being used as a storage interface. The SmartCable provides a compact, elegant solution that distances the physical interface (USB, FireWire, etc) from the download station using ubiquitous gigabit Ethernet.

Physically, the SmartCable uses attached data cables, so it can be considered as a cable with an Ethernet jack on one end, a USB or FireWire plug on the other, and a “bump” in the middle. Power to the device is via a wide-input DC supply, supporting both 12V and 28V sources.

Features

- ***Convert Physical and Logical Protocols for downloading memory modules***
- ***USB module interface standard, variants for IEEE 1394/FireWire & SATA Memory Modules***
- ***Gigabit Ethernet Output Interface***
- ***Web, SMB/CIFS, FTP, NFS protocols***
- ***Software options:***
  - ***NADSI (STANAG) Download***
  - ***Chapter 10 Download and/or Demux***
  - ***Cyber Security options, including Embedded Firewall***
- ***In-line design: “Bump in the cable” (5” x 3” x 2”)***
- ***Attached cables prevent loss***

Together with its hardware capabilities of bridging the storage connection to a network interface, the SmartCable also provides software to translate the data and even file formats used on the memory module into formats more easily processed by the consumer. For example, it can easily provide access from Windows computers to modules formatted for Linux (or vice versa, although Linux typically can do this natively).

The default interface to the SmartCable is via web pages, which allow operators to download files and, with specific supported memory modules, perform other housekeeping tasks such as formatting, erasing and accessing diagnostic information. Other access methods, such as Windows and NFS networking as well as (Secure) FTP are also available.

The SmartCable supports “Zero-Configuration” networking, as well as more centralized systems where servers deliver configuration information to the device.

NADSI (STANAG 4575) Handling

Many applications involve the use of the NATO Advanced Data Storage Interface (NADSI) defined by Standard Agreement (STANAG) 4575. The IRIG 106 Chapter 10 recorder standard mandates a variant using IEEE 1394/FireWire, and while Edition 4 of the STANAG does define an Ethernet version, there are many cases where the memory module is NADSI formatted and software is unavailable to access it, or the module does not use NADSI but the application requires its use.

The SmartCable can handle conversions both ways: from NADSI modules to conventional network protocols and from modules structured for Linux or Windows to the Ethernet-based NADSI. The conversion from NADSI is handled by an optional embedded NADSI driver, which exposes the contents of the module as regular files. The conversion to NADSI uses Ampex’s Virtual NADSI Presentation Service, which non-destructively builds an image of a NADSI filesystem and then presents that over the Ethernet to download devices.

In this application, the SmartCable can be equipped with a female Ethernet port and a NADSI-compliant 28V power interface cable with the appropriate circular connector, both as mandated by the STANAG.

AMPEX SmartCable Intelligent Download Interface

Multiplexed File Processing

The IRIG 106 Chapter 10 standard mandates both a NADSI-based filesystem, but also a method for multiplexing multiple channels of packetized data into a single file. With an optional demultiplex module, and using the web interface, the SmartCable can split out an individual channel into a separate download file, optionally stripping the added packet headers (so that just the raw data is downloaded). If the original data was from e.g. a video source, then this allows “on the fly” downloading of just the video file, which can then be displayed with any player even those that are not “Chapter 10” aware.

For greater performance, a client side (Windows) application can be supplied that will allow the simultaneous download of multiple channels, each into a separate file.

Combined with the NADSI FireWire capability, the SmartCable can take a Chapter 10 memory module and demultiplex and download files without needing special software on the download station.

Cryptographic Support

Some memory modules employ “Data At Rest” encryption with an on-board key store, so that data on the module can be destroyed by purging the keys. For these types of module, in order to access the stored data, the appropriate key must be extracted from the store and then loaded into the decryption algorithm; the interface to the key store is generally different from the interface to the storage media.

The SmartCable can be configured to manage the keys (both from an embedded key store and potentially from a remote store), making it possible for the download station to access the recorded data without having to be aware of the encryption and key handling methodology.

Cyber Security Facilities

By acting as a bridge between the memory module and the download system, the SmartCable is perfectly positioned to provide cyber security features to protect and isolate the two from each other.

In its simplest form, the use of the SmartCable provides protection in that it converts a storage interface (on the memory module) into a network interface, defeating many attack vectors (or rather, diverting the attack to the SmartCable, which is locked down against such malware). In this, the SmartCable acts as a type of firewall, insulating workstations from memory modules.

More advance capabilities can be provided: the SmartCable can block access to file types that are not recognized. With suitable configuration, the SmartCable can analyze files on memory modules to ensure that they match the expected content type (e.g. video files, Chapter 10 multiplexed files) and will simply refuse to allow unrecognized files to be selected for download. (In the case of the NADSI or file serving download modes it can just omit the unexpected files from the list available).

Similarly, uploads can be scanned to ensure that they meet the expected format, and can be refused if they do not match. For example, the SmartCable could be configured to permit text (or XML) configuration files to be loaded, but no binary files.

Available Models and Options

- SmartCable with USB 3.0 Storage Interface
- SmartCable with FireWare/IEEE 1394 storage Interface
- SmartCable with TuffCORD MDR (SATA + USB) Interface
- NADSI Power Cable Option
- NADSI Memory Module Filesystem Support
- Virtual NADSI Presentation Service Support
- Chapter 10 Demultiplex Software – Single Channel
- Chapter 10 Demultiplex Software – Multiple Channels

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