SOLID STATE DRIVES

Solid State Drives (SSDs)

CURTISSWRIGHTDS.COM

Key Features

- Suitable for Curtiss-Wright data recorders
- Docks using GTS/BAY/001
- Rugged nickel-plated aluminum housing

Applications

- Ethernet data recording

Overview

SSDs are removable mass storage devices used in Curtiss-Wright data recorders. They provide rugged storage of data.

The SSD is easily removable and can be connected to a PC (via a GTS/BAY/001). The SSD uses an External Serial ATA Powered (eSATAp) connector when connected to a PC. When inserted in a Curtiss-Wright network recorder, it automatically switches to the recorder's internal connector.

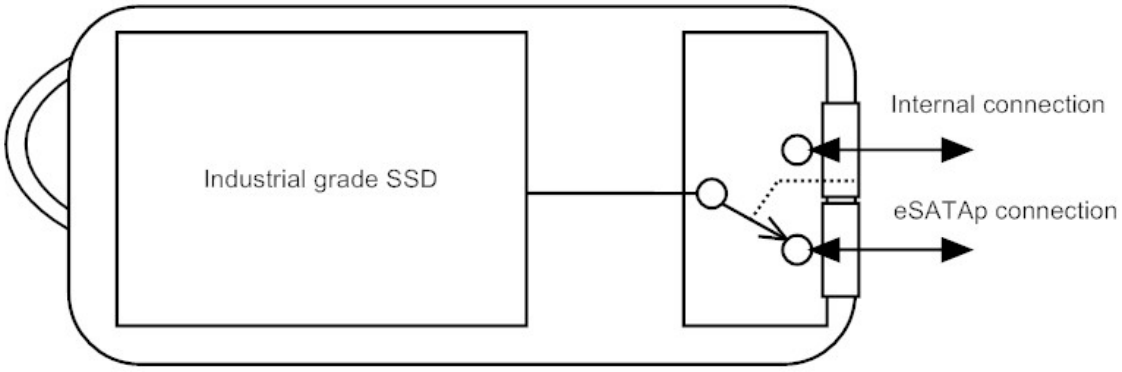

Figure 1: Serial ATA (SATA) cartridge with connectors for eSATAp and data recorder

Specifications

All values provided in the following specification tables are valid within the operating temperature range specified under “Environmental ratings” in the “General specifications” table.

TABLE 1	General specifications				
PARAMETER	MIN.	TYP.	MAX.	UNITS	CONDITION/DETAILS
Mass					
	–	244	–	g	
	–	8.6	–	oz	Design metric is grams.
Dimensions					Design metric is millimeters.
height	–	14.75	–	mm	
height	–	0.58	–	in.	
length	–	163.69	–	mm	Measurement includes handle.
length	–	6.44	–	in.	
width	–	78	–	mm	
width	–	3.07	–	in.	
Recording rate	–	–	–	–	For recording rates, refer to the respective data sheets for Ethernet data recorders.
Input range	4.75	5	5.25	V	
Power	1.2	1.6	2.2	W	
Data retention time	–	–	10	yrs	At 25°C.
Erase cycles	–	–	40	k	Typically.
Environmental ratings					
operating temperature	-40	–	85	°C	
storage temperature	-55	–	95	°C	

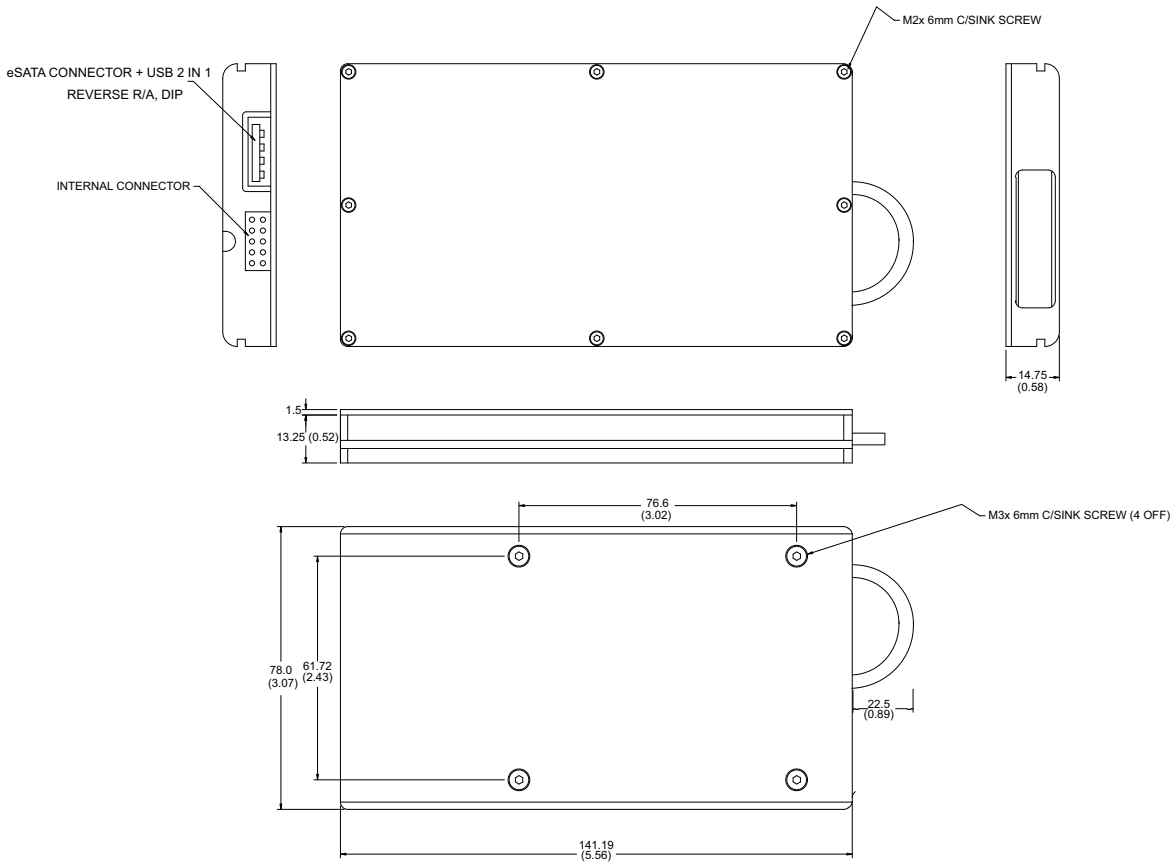

Figure 2: SSD mechanical drawing

TABLE 2	SATA signals				
PARAMETER	MIN.	TYP.	MAX.	UNITS	CONDITION/DETAILS
Signalling rate	1.5	3	6	Gbps	Compliant with SATA II connection.

Getting the most from the SSD

Preparing storage media (formatting media)

The SSD must be formatted before use, either by using a Curtiss-Wright recorder or by using Curtiss-Wright's SSRFormat utility.

Formatting using the SSRFormat utility

SSRFormat is a stand-alone command line utility, which formats the SSD and reserves space on the drive for use by Curtiss-Wright recorders. The SSD must be connected to a PC with a GTS/BAY/001 or an eSATAp cable as described in "Connecting the SSD to a PC" on page 4.

SSRFormat is capable of identifying a disk previously formatted by a Curtiss-Wright recorder. This prevents inadvertent formatting of the wrong drive on the PC. If more than one Curtiss-Wright disk is identified, SSRFormat allows you to select a disk. If the SSD formatting is lost, for example by formatting the disk from Microsoft Windows®, it may be necessary to format it in a recorder before SSRFormat can be used again on that drive.

The SSRFormat utility also has a command-line option to reset the SSD using the ATA (Advanced Technology Attachment) interface standard TRIM command. This should be used whenever the SSD is formatted, or at least once in every 25 formats.

NOTE: The DRE/SSD/003 and DRE/SSD/005 do not require use of the TRIM command; instead these SSDs carry out the equivalent function in the background while writing.

If TRIM is not used, over time some sectors in the SSD may become slow, and at high data rates this can cause a recorder to drop packets which it is trying to record.

WARNING: Currently, Curtiss-Wright recorders do not support the TRIM command. To avoid data loss, it is necessary periodically to format and TRIM the SSD with the SSRFormat utility.

In interactive mode, the utility always asks for confirmation to proceed before formatting begins.

WARNING: When not in interactive mode (command line arguments include target volume name), the utility destroys all data on the target volume without offering a request to confirm.

When operating Windows 7 (64-bit), the utility must be run by an administrator user.

Formatting using a recorder

1. Insert the media into the recorder.
2. Press and hold the **EVENT** button for three seconds.
3. When the display shows **"Format?"**, keeping the **EVENT** button pressed, toggle the **START/STOP** switch to the **START** position and back to the **STOP** position within ten seconds.
   (The switch must be pulled away from the panel before it can be toggled.)
4. When the display shows **"Formatting xx%"**, release the **EVENT** button.
   During formatting, the progress of the format process is displayed and the **ERROR** LED is on. When complete, the display indicates the ready state **"N00 Stopped"**.
   Do not disconnect power to the recorder until formatting has ended.

After the drive has been formatted, it may be connected to a PC via a GTS/BAY/001 or with an appropriate eSATAp cable.

Connecting the SSD to a PC

Normally, a PC with eSATAp ports and appropriate drivers automatically detects the SSD, though in some cases it may be necessary to refresh the list of installed hardware.

The method for refreshing the hardware list varies depending on the operating system.

To refresh the hardware list in Windows XP, do the following:

1. Open the **System Properties** window by double-clicking **System** in the **Control Panel** window
2. On the **Hardware** tab, click **Device Manager**.
3. In the **Device Manager** window, right-click on **Disk drives** and select **Scan** for hardware changes.

Some PCs may not detect the SSD until they are restarted.

After the PC is powered up with the SSD connected, a Windows message may warn that the drive does not have much space remaining. Any such message can be ignored; the space is being reserved for recorded data and is unavailable to Windows. When Windows has detected the drive, the data, recorded in PCAP file format, can be copied to the PC, read and analyzed. The speed at which data can be read depends on the PC and the operating system, however 75MBps (megabytes per second) is a typical rate.

NOTE: Never allow Windows to write to the SSD. If the SSD's file system is modified by Windows, the recorder does not allow the drive to be mounted. This ensures recorders do not damage files which they do not recognize.

Connector pinouts for SSD

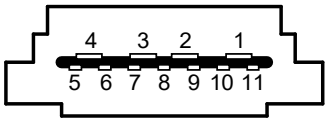

Figure 3: eSATAp connector

Connector pinout of the eSATAp connector

PIN	NAME	SEE SPECIFICATIONS TABLE	COMMENT
1	Power	General specifications	+5V power from PC to SSD
2	DNC		Do not connect
3	DNC		Do not connect
4	GND	Ground	
5	GND	Ground	
6	A+	SATA signals	SATA data from recorder to SSD
7	A-	SATA signals	SATA data from recorder to SSD
8	GND	Ground	
9	B-	SATA signals	SATA data from SSD to recorder
10	B+	SATA signals	SATA data from SSD to recorder
11	GND	Ground	

Ordering information

PART NUMBER	DESCRIPTION
DRE/SSD/003/240GB	240GB eSATAp storage media

Revision history

REVISION	DIFFERENCES	STATUS
Solid State Drives	First release	Recommended for new programs

Related products

PRODUCT	DETAILS
GTS/BAY/001	Desktop 5.25-inch DRE/SSD/00x harness

Related documentation

DOCUMENT	DETAILS
TEC/NOT/051	Ethernet frames, Wireshark® and FAT32
TEC/NOT/067	IENA and iNET-X packet payload formats
DOC/USG/012	Network Recorders User Guide
DOC/USG/013	Multi-role Recorders User Guide