



**Exceptional scalability for today's storage technology environment.**

### Robust Cost-effective Storage Expansion

Data storage capacity continues to expand. Today's business environment requires simple, easy ways to grow capacity without sacrificing performance and scalability. The Newisys® NDS-2120 SAS/SATA 3.5" hard disk drive (HDD) Storage Expansion JBOD array enables simple capacity extension, with linkage via standard serial attached SCSI (SAS) protocol and enclosure services linked via SES firmware. The Newisys NDS-2120 Storage Expansion offers best-in-class performance, space-saving density, "green" energy efficiency and 24x7 high-availability redundancy of key components. The Newisys NDS-2120 is a perfect expansion companion for other Newisys data storage products such as the Newisys NDS-8200 Storage Application Array.

### Partner with Newisys

Partnering with Newisys not only means accelerated time-to-market for storage products, but also the proven strength of our quality, reliability and performance. Customers are backed by an industry-leading design team and a world-class manufacturing organization. The Newisys Flexible Storage Architecture (FSA) provides block-based modular designs and the configuration flexibility that can become the foundation of your storage solutions and accelerate your time-to-market.



NDS-2120-JS Back Panel



### Product Highlights

- Full-featured robust high performance storage enclosure
- Operation as either single I/O controller connected JBOD or dual controller I/O for redundant failover
- Hot dual-plug I/O controllers and advanced power/cooling (APC) modules
- 3+1 redundant system cooling fans powered by either APC module
- SAS Connection supports up to 1200MB/s
- Flexibility to choose or combine SAS and SATA drives to achieve the right performance and price
- Modular design increases product configuration flexibility
- Standard chassis customization and branding available
- Point-to-point connectivity isolates drive failures, increasing reliability and fault tolerance, and improving performance
- Additional SAS daisy-chain expansion to additional NDS-2120 storage arrays



### Host Interface

- One or two SAS I/O modules per system, each I/O module supports two SAS connections
- SAS connections can be used for host connections or as a combination of host connection and expansion
- SAS connection supports up to 1200MB/s
- Up to 9 systems can be daisy chained together, to create up to 110TB

### Measured Performance

- Up to 750MB/s (sustained reads)

### Capacity

- Up to 12 drives (12TB) capacity per 2U enclosure

### Software/Firmware

- SCSI Enclosure Services (SES) based firmware

### I/O Module Features

- NDS-2120D: Dual active, redundant SAS and SATA (with optional 2:1 SATA MUX) support with expansion
- NDS-2120S: Single SAS and SATA support with expansion
- Auto negotiate speeds
- In-band and out-of-band management
- SMP and SSP command/protocol support
- Redundant cable support

### Redundant Hot-Swappable Components

- Up to two SAS I/O controller modules
- Two advanced power and cooling modules (APC)
- Two independent AC power inlets
- Up to 12 drives

### Environmental Protection

- RoHS and WEEE compliant

### Rackmount Enclosure Dimensions

- 3.5 in. H x 17.6 in. W x 19.5 in. D (8.9 cm H x 44.7 cm W x 49.53 cm D)
- Weight with drives: 60 lbs (27 kg) max

### Failure Notifications

- SCSI enclosure services (SES-2) over I2C physical interface, LEDs, audible alarms, field replaceable unit (FRU) revision and serial number reporting

### Disk Drives

- 12 independent 300MB/s point-to-point connections to each SAS or SATA disk drive with dual-port access and failover by each controller to each drive (SATA drive requires optional 2:1 MUX)
- Common drive carrier for NDS-2120 and NDS-8200
- Form factor: 3.5" SAS and SATA drives
- Rotational velocity: 7200 RPM, 10K RPM and 15K RPM
- Interface: 3Gb SAS; 3Gb/1.5Gb SATA

### Maximum SAS Cable Lengths

- Up to 6 m

### AC Power

- Input voltage: Auto ranging, 85-264V AC
- Input frequency: 47-63Hz
- Power factor correction: Per EN61000-3-2
- Input current: 100-240V AC @ 6-2.5 A
- Output power: 491W peak, 430W average

### Monitoring

- Temperature, advanced power and cooling modules including fan speed control, disk drives and I/O module(s), as well as error rates and quality of service

### Operating Environment

- Temperature: 5° to 35°C
- Temperature gradient: 20°C per hour
- Relative humidity: 10 to 80 percent (non-condensing)
- Humidity gradient: 10% per hour
- Altitude: -200 to 10,000 ft.
- Shock: 5G at 11ms, 1/2 sine wave pulse
- Vibration: 0.15G at 5Hz to 400Hz
- Acoustics: 6.5 Bels at normal operation tested to ISO7779

### Non-Operating Environment

- Temperature: -40° to 70°C
- Relative humidity: 5% to 95% (non-condensing)
- Altitude: -200 to 40,000 ft.
- Shock: 10G at 11ms, 1/2 sine wave pulse
- Vibration: 0.5G at 5Hz to 400Hz

### Electromagnetic Emissions and Immunity Standards

- CE Mark, EN55022/EN61000 Class A
- FCC Class A, Canadian IECES-003
- VCCI Class A

### Safety Standards

- UL 60950, CSA 22.2-950
- IEC 60950, EN 60950

### Quality Standards

- Manufactured under an ISO 9002 registered quality system



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### About Newisys

Newisys, founded in 2000, provides leading-edge data center products including disk-based RAID storage/server appliance platforms and JBOD expansion enclosures, racks and other full solution items targeted for the robust data center environment. Newisys solutions are tailored for integration into Original Equipment Manufacturer (OEM), System Integrator and Internet Data Center partners' products. A Newisys partnership provides the highest-level quality design and products synchronized with one of the world's most advanced and comprehensive manufacturing infrastructures and supply chains. For more information, visit <http://www.newisys.com>.