DSA E-Series (E2800 60-bay)

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DDP	iSCSI	RAID5	RAID6
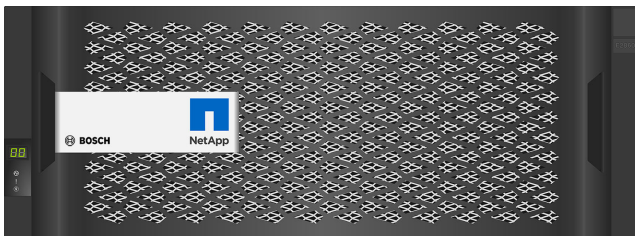
▶ Scale-up network storage solution: controller unit with 60 internal HDDs expandable via state-of-the-art SAS interface-connected expansion units

▶ Configurable hardware-based RAID/DDP protection (RAID-5, RAID-6 or DDP) for highest system performance

▶ Redundant hot-swappable power supplies and cooling fans

▶ Two 10 Gigabit Ethernet ports for highest speed iSCSI connectivity

▶ Fully modular design for ease of service and protected by NetApp services, including a 3 years next business day on-site support

DSA E2800 represents the next generation of DSA E-Series, the iSCSI-based digital video disk arrays by Bosch. They are state-of-the-art platforms designed for the security industries most demanding digital video storage applications to manage relentlessly growing digital video data. Since HD and recently UHD (4K) IP cameras and encoders have entered the surveillance market, the ever growing need for high bandwidth and low complexity of the storage infrastructure are the main challenges. The next generation DSA E2800 disk arrays are the answer to it.

System overview

DSA E2800 is based on a 4U dual controller unit with 60 internal 3.5", 7.2 K, NL-SAS (Serial Attached SCSI), enterprise HDDs (Nearline SAS) for high-capacity and extreme performance requirements.
This storage system is a high-performance solution designed with robust flexibility that makes it a great fit for wide-ranging video surveillance requirements. Its balanced performance is designed for supporting high bandwidth and I/O intensive workloads.

The DSA E2800 disk shelf option with a high density 60-bay expansion unit with 60 x 3.5", 7.2 K, NL-SAS, enterprise HDD (4U) enables custom configurations that can be optimized for any standard mid- to enterprise-environments.
And the DSA E2800 fully redundant I/O paths, advanced protection features, and extensive diagnostic capabilities deliver high levels of availability, integrity, and security.

Functions

DSA E2800 is the co-branded E2800 series from NetApp. It is a scale-up network storage solution that provides security, highest "in-the-box" scalability, peace-of-mind data protection, and simplified management of all your video data. NetApp pioneered the iSCSI protocol years ago and offers with the new E2800 product line a high-end product for the video surveillance market.

DSA E2800 60-bay dual controller configuration allows connecting up to two 60-bay expansion units (60 x HDDs per expansion shelf) connected to one dual controller base unit.
It is a fully featured RAID/DDP protected disk array which provides RAID-5 protection for capacity-oriented environments and RAID-6/DDP protection for availability-oriented environments. The RAID and DDP (Dynamic Disk Pools) protection is based on a hardware implementation which ensures highest system performance.

High reliability and availability
DSA E2800 keeps your data safe and available with redundant hot-swappable power supplies and fans, and protects from double-disk failure and single bit errors during rebuilds with high performance RAID-6 or DDP.
With over 20 years of storage development experience, DSA E-Series is based on a field-proven design architected to provide high reliability and availability. Its redundant components, automated path failover, and online administration keep organizations productive 24 x 7 x 365.
Further high-availability features include:
- Automatic drive failover and detection and rebuild if using global hot spare drives
- Data cache with battery backup and de-stage to flash
- **SANtricity** proactive drive health monitoring identifies problem drives before they create issues

Monitoring
Full SNMP support with MIB-II and NetApp custom MIBs supported. In case of component failures SNMP, e-mail alert notifications will be generated. Additionally, an event monitor for sending alert notifications to a central major event log is available. If the device is connected to the Internet/Intranet automatically generated **AutoSupport** messages can be sent. AutoSupport enhances customer service, speeds problem resolution, and helps prevent issues. It automatically sends alerts based on either event-based or time-based (weekly, daily, other) criteria to provide faster and better customer service, keeping your systems up and running longer.

Management
NetApp SANtricity storage management software combines robustness and ease of use. Full-time storage administrators appreciate the extensive configuration flexibility which allows optimal performance tuning and complete control over data placement. Part-time system administrators love the intuitive interface and wizards designed to simplify their tasks. With its dynamic capabilities, SANtricity software supports on-the-fly expansion, reconfiguration, and maintenance without interrupting storage system I/O.

Certifications and approvals

Region	Regulatory compliance/quality marks	
Europe	CE	DoC DSA E-Series (E2800 60-bay)

Installation/configuration notes

Bosch provides the necessary software tools for an initial setup of the storage in a video surveillance environment. In addition, the system provides web based configuration and a powerful Command Line Interface (CLI) which is fully remote accessible by SSH (Secure Shell).
DSA E-Series offers per controller a serial console connector and 2 dedicated Ethernet management ports for management access, 2 x 10 Gigabit Ethernet iSCSI host ports, and 2 additional optical iSCSI ports. Each port must be configured with a separate IP address; the 4 iSCSI ports are separated access paths to the storage system and represent an individual iSCSI target each.
In dual controller systems the iSCSI ports with the same number are tied together for redundancy purpose, while one of the ports is a fall-back path for an iSCSI port on the other controller.

Net capacity
The net capacity available is shown in the following tables:

Configuration Information (RAID-5)	Net Capacity (GB)
60-bay unit (60 x 4 TB)	204820
60-bay unit (60 x 8 TB)	409640
60-bay unit (60 x 10 TB)	512050
60-bay unit (60 x 12 TB)	614460

Configuration Information (RAID-6)	Net Capacity (GB)
60-bay unit (60 x 4 TB)	186200
60-bay unit (60 x 8 TB)	372400
60-bay unit (60 x 10 TB)	465500
60-bay unit (60 x 12 TB)	558600

Configuration Information (DDP)	Net Capacity (GB)
60-bay unit (60 x 4 TB)	156408
60-bay unit (60 x 8 TB)	312816
60-bay unit (60 x 12 TB)	469224

Performance data
Performance data per controller unit in a 10 Gbit/s network (in a 1 Gbit/s network the available network bandwidth is the limiting factor):

Network Uplink 10 GbE

	IP cameras	RAID-5/-6 Bandwidth Mbps (write / read)	DDP Bandwidth Mbps (write / read)
Dual port	800 (400 per port)	1250 / 250	1150 / 250

i **Notice**
Number of IP cameras refers to default software configuration (no direct replay mode).

i **Notice**
DSA E2800 dual controller systems require Bosch camera firmware version 6.43 and later, VRM Video Recording Manager version 3.71 and later, and Configuration Manager version 5.53 and later.

i **Notice**
Do not use any other accessories than specified in the data sheet!

i **Notice**
The next business day on-site service level can only be provided if the respective system has been registered immediately after receipt and installation. Otherwise, service will be provided based on best effort basis.
Information about registration details is available in every shipment (registration form) or from the Bosch online product catalog.
Next business day services cannot be provided in every country everywhere. For limitations and exceptions see the registration details in the registration form.

Technical specifications

Electrical requirements 60-bay controller units

Parameter	Low range	High range
Nominal voltage	200 VAC	240 VAC
Frequency	50 Hz	60 Hz
Typical operating current	6.0 A	5.0 A
Maximum operating current	7.0 A	5.8 A
System rating plate label	9.98 A	9.98 A

Electrical requirements 60-bay expansion units

Parameter	Low range	High range
Nominal voltage	200 VAC	240 VAC
Frequency	50 Hz	60 Hz
Typical operating current	5.2 A	4.3 A
Maximum operating current	6.0 A	5.4 A
System rating plate label	9.98 A	8.32 A

Power ratings (typical operating power)

KVA	1.05
Watts	1022
BTU/h	3495

Note: for detailed information please see the latest NetApp E-Series Site Preparation Guide

Mechanical

Dimensions (H x W x D)

• 60-bay unit	17.44 x 44.85 x 97.15 cm (6.87 x 17.66 x 38.25 in)
• Shipping carton	68.8 x 68.3 x 117.6 cm (27.1 x 26.9 x 46.3 in)

Weight

• Maximum weight controller unit	113.0 kg (249.12 lb)
• Maximum weight expansion unit	112.2 kg (247.4 lb)
• Maximum shipping weight	147.1 kg (324.3 lb)

Space requirements

Front clearance (cooling and maintenance)	81.2 cm (32.0 in)
Rear clearance (cooling and maintenance)	60.9 cm (24.0 in)

Environmental

Temperature

• Operating range (both cabinet and subsystem)	+10 °C to +40 °C (+50 °F to +104 °F)
• Storage range	0 °C to +70 °C (+32 °F to +158 °F)

Relative humidity (non-condensing)

Environmental

• Operating range (both cabinet and subsystem)	20 to 80%
• Storage range	5 to 95%

Altitude

• Operating range	30.5 m (100 ft) below sea level to 3000 m (9842 ft) above sea level
• Storage range	30.5 m (100 ft) below sea level to 12,192 m (40,000 ft) above sea level

Acoustic noise

• Sound power controller unit (standby operation)	72 dB
• Sound pressure (normal operation)	72 dBA

Notes:
General technical information for the RAID systems are provided in the NetApp E-Series
Site Preparation Guide - available at:
https://library.netapp.com/ecm/ecm_download_file/ECMLP2773643

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and from the NetApp Website and are subject to change without notice.

Ordering information

DSA-N6C8X4-60AT Dual controller unit 60x4TB
High-performance and high-capacity storage system base unit with iSCSI disk arrays, dual controller.
DSA E2800, 60 x 4 TB HDD
Order number **DSA-N6C8X4-60AT**

DSA-N6C8X8-60AT Dual controller unit 60x8TB
High-performance and high-capacity storage system base unit with iSCSI disk arrays, dual controller.
DSA E2800, 60 x 8 TB HDD
Order number **DSA-N6C8X8-60AT**

DSA-N6C8XA-60AT Dual controller unit 60x10TB
High-performance and high-capacity storage system base unit with iSCSI disk arrays, dual controller.
DSA E2800, 60 x 10 TB HDD
Order number **DSA-N6C8XA-60AT**

DSA-N6C8XC-60AT Dual Controller Unit 60x12TB
High-performance and high-capacity storage system base unit with iSCSI disk arrays, dual controller.
DSA E2800, 60 x 12 TB HDD
Order number **DSA-N6C8XC-60AT**

Accessories

DSX-N6D8X4-60AT Expansion unit 60x4TB
High-performance and high-capacity storage expansion unit with iSCSI disk arrays for DSA E2800.
60 x 4 TB HDD
Order number **DSX-N6D8X4-60AT**

DSX-N6D8X8-60AT Expansion unit 60x8TB
High-performance and high-capacity storage expansion unit with iSCSI disk arrays for DSA E2800.
60 x 8 TB HDD
Order number **DSX-N6D8X8-60AT**

DSX-N6D8XA-60AT Expansion unit 60x10TB
High-performance and high-capacity storage expansion unit with iSCSI disk arrays for DSA E2800.
60 x 10 TB HDD
Order number **DSX-N6D8XA-60AT**

DSX-N6D8XC-60AT Expansion Unit 60x12TB
High-performance and high-capacity storage expansion unit with iSCSI disk arrays for DSA E2800.
60 x 12 TB HDD
Order number **DSX-N6D8XC-60AT**

DSX-NRCK40-INT8 Rack empty 40U
Empty rack for DSA E2800 60-bay units.
Order number **DSX-NRCK40-INT8**

DSX-WDTK8-4TB HDD 4TB for 60bay
Hard disk storage expansion with a capacity of 4 TB.
For DSA E2800 60-bay expansion units.
Order number **DSX-WDTK8-4TB**

DSX-WDTK8-8TB HDD 8TB for 60bay
Hard disk storage expansion with a capacity of 8 TB.
For DSA E2800 60-bay expansion units.
Order number **DSX-WDTK8-8TB**

DSX-WDTK8-10TB HDD 10TB for 60bay
Hard disk storage expansion with a capacity of 10 TB.
For DSA E2800 60-bay expansion units.
Order number **DSX-WDTK8-10TB**

DSX-WDTK8-12TB HDD 12TB for 60bay
Hard disk storage expansion with a capacity of 12 TB.
For DSA E2800 60-bay expansion units.
Order number **DSX-WDTK8-12TB**

Services

DSA-S6D8X48-4PR DSA E2860 4-8TB 4h Prt Rpl 1yr POS

12-month service uplift to SupportEdge Standard: parts replacement within 4 hours for DSA E2800 4 TB, 6 TB, or 8 TB based 60-bay controller or expansion units, available for in-warranty systems only.
Order number **DSA-S6D8X48-4PR**

DSA-S6D8XAC-4PR DSA E2860 10-12TB 4h Prt Repl 1yr POS

12-month service uplift to SupportEdge Standard: parts replacement within 4 hours for DSA E2800 10 TB or 12 TB based 60-bay controller or expansion units, available for in-warranty systems only.
Order number **DSA-S6D8XAC-4PR**

DSA-S6D8X48-NRD DSA E2860 4-8TB Non Ret DO 1yr POS

12-month non-returnable disk option for DSA E2800 4 TB, 6 TB, or 8 TB based 60-bay controller or expansion units, available for in-warranty systems only.
Order number **DSA-S6D8X48-NRD**

DSA-S6D8XAC-NRD DSA E2860 10-12TB Non Ret DO 1yr POS

12-month non-returnable disk option for DSA E2800 10 TB or 12 TB based 60-bay controller or expansion units, available for in-warranty systems only.
Order number **DSA-S6D8XAC-NRD**

DSA-S6D8X48-SLP DSA E2860 4-8TB SES Ext 1yr POS

12-month extension of SupportEdge Standard next business day for DSA E2800 4 TB, 6 TB, or 8 TB based 60-bay controller or expansion units, available for a 4th and a 4th/5th year as a standard.
Order number **DSA-S6D8X48-SLP**

DSA-S6D8XAC-SLP DSA E2860 10-12TB SES Ext 1yr POS

12-month extension of SupportEdge Standard next business day for DSA E2800 10 TB or 12 TB based 60-bay controller or expansion units, available for a 4th and a 4th/5th year as a standard.
Order number **DSA-S6D8XAC-SLP**