DSA E-Series 6TB (E2700)

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Invented for life

iSCSI RAID5 RAID6

- Scale-up network storage solution: controller unit with 12 internal HDDs expandable via state-of-the-art SAS interface-connected expansion units
- Configurable hardware-based RAID protection (RAID-5 or RAID-6) 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 E2700 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 E2700 is the answer to it.

System overview

DSA E2700 is based on one 2U controller unit with 12 internal 3.5”, 7.2 K, NL-SAS (Serial Attached SCSI), enterprise HDDs (Nearline SAS).
The controller unit is available as a standard Simplex Controller configuration and as a Dual Simplex Controller configuration 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 E-Series’ disk shelf option with a standard 2U expansion unit with 12 x 3.5”, 7.2 K, SAS, enterprise HDD and a high-density 4U expansion unit with 60 x 3.5”, 7.2 K, SAS, enterprise HDD enable custom configurations that can be optimized for any environment.
And the DSA E2700 fully redundant I/O paths, advanced protection features, and extensive diagnostic capabilities deliver high levels of availability, integrity, and security.

Functions

DSA E2700 is the co-branded E2700 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 E2700 product line a high-end product for the video surveillance market.
DSA E2700 in Simplex/Dual Simplex Controller configuration allows connecting up to seven 12-bay expansion units (12 x HDDs per expansion shelf) to one single/dual controller base unit.
Note: This is only valid for 12-bay expansion units with two ESM modules.
The Dual Simplex Controller configuration allows one 60-bay expansion unit (60 x HDDs per expansion shelf) connected to one dual controller base unit.
Connecting the 60-bay expansion unit to a single controller unit is not supported.
It is a fully featured RAID protected disk array which provides RAID-5 protection for capacity-oriented environments and RAID-6 protection for availability-oriented environments. The RAID protection is based on a hardware RAID implementation for highest system performance. RAID-6 is highly recommended if the system will be used with a larger number of disk shelf expansion units.

High reliability and availability
DSA E2700 keeps your data safe and available with redundant hot-swappable power supplies and fans, and protection from double-disk failure and single bit errors during RAID rebuilds with high performance RAID-6.
With over 20 years of storage development experience, DSA E2700 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 DSA E2700 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. The software is available as 32-bit and 64-bit Microsoft OS installation package (available on the Bosch product catalogue).

Certifications and approvals

Region	Certification	
Europe	CE	DSA E-Series (E2700)
USA	UL	DSA E-Series (E2700)

Installation/configuration notes

Installable on 32-bit and 64-bit Windows Clients, SANtricity storage management software provides easy central management of all DSA E-Series arrays available within one network. There is no additional software necessary to be installed on peripheral devices. In addition, the system provides 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 two dedicated Ethernet management ports for management access and 2 x 10 Gigabit Ethernet iSCSI host ports. Each port must be configured with a separate IP address; the two iSCSI host ports are separated access paths to the storage system and represent an individual iSCSI target each.
The net capacity available is shown in the following table:

Configuration Information (RAID-5)	Net Capacity (GB)
Simplex Controller unit (12 x 6 TB)	61446
Dual Simplex Controller unit (12 x 6 TB)	61446
12-bay expansion unit (12 x 6 TB)	61446
60-bay expansion unit (60 x 6 TB)	307230

Configuration Information (RAID-6)	Net Capacity (GB)
Simplex Controller unit (12 x 6 TB)	55860
Dual Simplex Controller unit (12 x 6 TB)	55860

Configuration Information (RAID-6)	Net Capacity (GB)
12-bay expansion unit (12 x 6 TB)	55860
60-bay expansion unit (60 x 6 TB)	279300

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 (RAID-5 / RAID-6)

	iSCSI Sessions	Bandwidth Mbps (Base Unit 12 x HDD)	Bandwidth Mbps (min. 1 x Base Unit + 1 x Expansion Unit: 24 x HDD)
Single port	400	650 / 150	1050 / 200
Dual port	800 (400 per port)	650 / 150	1050 / 200

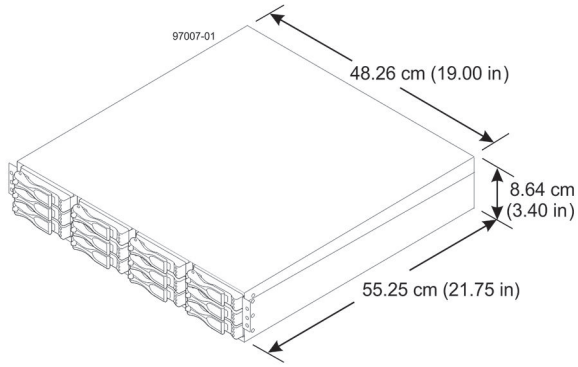
Note: The overall bandwidth is per controller and does not depend on the number of used ports. The number of cameras will double by using two ports instead of one port.

Notice
iSCSI session specifications refer to the total number of recording and replay sessions. Bandwidth data refer to <Recording> / <Replay>. The maximum overall bandwidth of a Dual Simplex Controller system is 2500 Mbps read/write throughput in a 10 GbE uplink network.

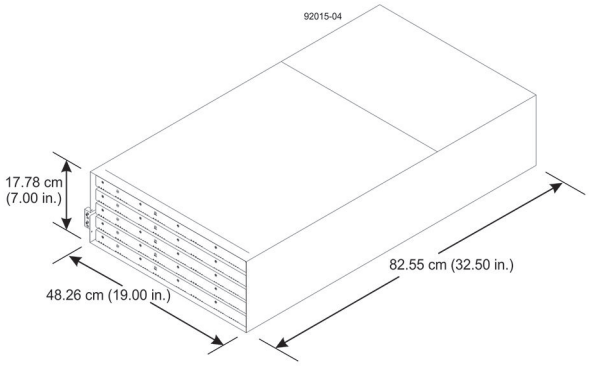
Notice
DSA E2700 units are only supported by Bosch Firmware 5.60 and later, VRM 3.0 and later, and Configuration Manager 5.32 and later.

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 catalogue.
Next business day services cannot be provided in every country everywhere. For limitations and exceptions see the registration details in the registration form.

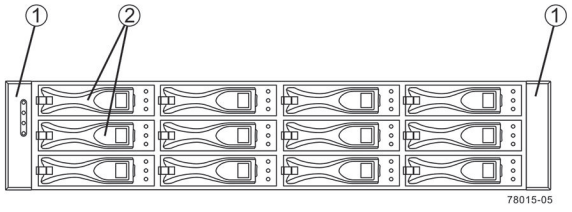
Dimensions controller unit and 12-bay expansion unit



Dimensions 60-bay expansion unit

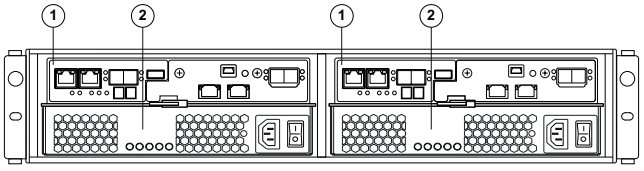


Front view controller unit



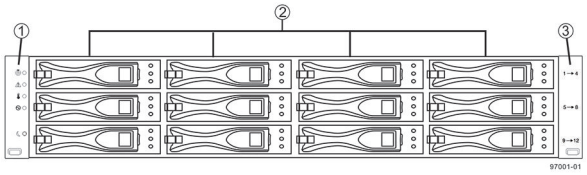
1 End Caps (the Left End Cap has the Controller-Drive Tray Summary LEDs)
2 Drive Canisters

Rear view Dual Simplex Controller unit



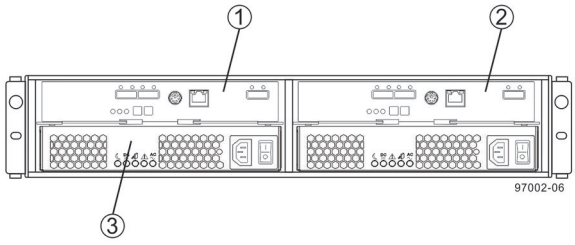
1 Controller Canister
2 Power-Fan Canister

Front view 12-bay expansion unit



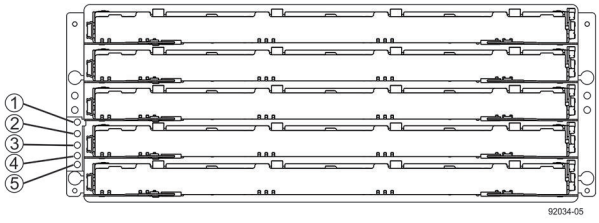
1 End Caps (the Left End Cap has the Drive Tray LEDs)
2 Drives
3 Right End Cap

Rear view 12-bay expansion unit



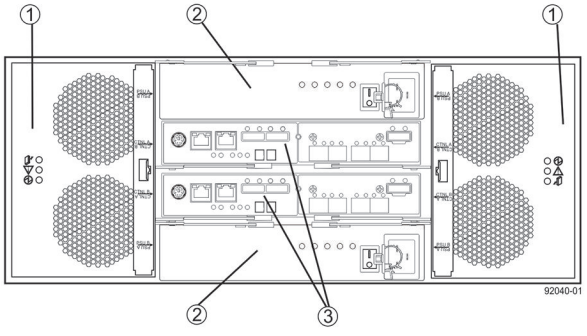
1 ESM A Canister
2 ESM B Canister
3 Power-Fan A Canister

Front view 60-bay expansion unit



1 Drive Drawer 1
2 Drive Drawer 2
3 Drive Drawer 3
4 Drive Drawer 4
5 Drive Drawer 5

Rear view 60-bay expansion unit



1 Fan Canisters
2 Power Canisters
3 ESM Canisters

Technical specifications

Simplex Controller 12 x 6 TB (DSA-N2E7X6-12AT) / Dual Simplex Controller 12 x 6 TB (DSA-N2C7X6-12AT)

Electrical requirements

Parameter	Low range	High range
Nominal voltage	100 VAC	240 VAC
Frequency	50 to 60 Hz	50 to 60 Hz
Typical operating current	3.61 A	1.50 A
Maximum operating current	5.16 A	2.15 A
Sequential drive group spin up	4.27 A	1.76 A
Simultaneous drive spin up	6.81 A	2.71 A
System rating plate label	9.0 A	3.6 A

Power ratings (typical operating power)

KVA	0.361
AC Watts	358
BTU/h	1220

Note: for detailed information please see the latest NetApp E-Series Storage Systems Site Preparation Guide available on the Bosch product catalogue.

Battery data

Number of batteries	2
Battery type	Li-ion
Weight of battery	0.157 kg (0.346 lb)
Battery casing	Pack
Battery group	Accumulator

System hardware specifications

Chassis	DSA E2700 controller-drive tray conforms to the 483 mm (19.0 in) rack standard
Power supplies	Dual redundant, hot pluggable
Maximum disk drives	12 x 6 TB, 3.5”, Nearline SAS
Maximum net capacity	61446 GB (RAID-5 configured)
DDR2 memory (system RAM)	4 GB

Integrated I/O	2 x 100 Mbps management port; 2 x 1/10 Gigabit Ethernet, copper
Remote management (via LAN)	Yes (plus serial console on dedicated port)

Mechanical

Dimensions (H x W x D)	
• Controller-drive tray	86.4 x 482.6 x 552.5 mm (3.4 x 19 x 21.75 in)
• Shipping carton	241.3 x 584.2 x 685.8 mm (9.5 x 23 x 27 in)
Weight	
• Maximum weight	24.9 kg (54.9 lb) Simplex Controller 27 kg (59.52 lb) Dual Simplex Controller
• Maximum shipping weight	29.65 kg (65.37 lb) Simplex Controller 31.75 kg (70.0 lb) Dual Simplex Controller

Space requirements

Front—cooling	760 mm (30 in) clearance in front of the cabinet
Rear—cooling	610 mm (24 in) clearance behind the cabinet
Front of chassis—maintenance	760 mm (30 in) clearance in front of the cabinet
Rear of chassis—maintenance	610 mm (24 in) clearance behind the cabinet

Environmental

Temperature	
• Operating range (both cabinet and subsystem)	+10 °C to +40 °C (+50 °F to +104 °F)
• Maximum rate of change	10 °C (50 °F) per hour
• Storage range	-10 °C to +50 °C (+14 °F to +122 °F)
Relative humidity (non-condensing)	
• Operating range (both cabinet and subsystem)	20 to 80%
• Storage range	10 to 90%
Acoustic noise	
• Sound power (standby operation)	65 dB max
• Sound pressure (normal operation)	65 dBA max

12-bay expansion unit 12 x 6 TB (DSX-N1D6X6-12AT)

Electrical requirements—expansion unit

Parameter	Low range	High range
Nominal voltage	100 VAC	240 VAC
Frequency	50 to 60 Hz	50 to 60 Hz
Idle current	2.96 A	1.23 A
Maximum operating current	3.03 A	1.26 A
Sequential drive group spin up	4.23 A	1.76 A
Simultaneous drive spin up	4.43 A	1.83 A
System rating plate label	7.0 A	2.9 A

Power ratings—expansion unit

KVA	0.276
AC Watts	276
BTU/h	954

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

System hardware specifications—expansion unit

Chassis	DE1600 controller-drive tray conforms to the 483 mm (19.0 in) rack standard
Power supplies	Dual redundant, hot pluggable
Maximum disk drives	12 x 6 TB, 3.5”, Nearline SAS
Maximum net capacity	61446 GB (RAID-5 configured)
Integrated I/O	6 Gb SAS

Mechanical—expansion unit

Dimensions (H x W x D)	
• Drive tray	86.4 x 482.6 x 552.5 mm (3.4 x 19 x 21.75 in)
• Shipping carton	241.3 x 584.2 x 685.8 mm (9.5 x 23 x 27 in)
Weight	

• Maximum weight	27 kg (59.52 lb)
• Maximum shipping weight	31.75 kg (70.0 lb)

Space requirements

Front—cooling	760 mm (30 in) clearance in front of the cabinet
Rear—cooling	610 mm (24 in) clearance behind the cabinet
Front of chassis—maintenance	760 mm (30 in) clearance in front of the cabinet
Rear of chassis—maintenance	610 mm (24 in) clearance behind the cabinet

Environmental—expansion unit

Temperature	
• Operating range (both cabinet and subsystem)	+10 °C to +40 °C (+50 °F to +104 °F)
• Maximum rate of change	10 °C (50 °F) per hour
• Storage range	-10 °C to +50 °C (+14 °F to +122 °F)
Relative humidity (non-condensing)	
• Operating range (both cabinet and subsystem)	20 to 80%
• Storage range	10 to 90%
Acoustic noise	
• Sound power (standby operation)	65 dB max
• Sound pressure (normal operation)	68 dB max

60-bay expansion unit 60 x 6 TB (DSX-N6D6X6-60AT)

Electrical requirements—expansion unit

Parameter	Low range	High range
Nominal voltage	220 VAC	240 VAC
Frequency	50 to 60 Hz	50 to 60 Hz
Idle current	6.0 A	6.0 A
Maximum operating current	7.56 A	7.56 A

Power ratings—expansion unit

KVA	1.268
AC Watts	1222
BTU/h	4180

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

System hardware specifications—expansion unit

Chassis	DE6600 controller-drive tray conforms to the 483 mm (19.0 in) rack standard
Power supplies	Dual redundant, hot pluggable
Maximum disk drives	60 x 6 TB, 3.5”, Nearline SAS
Maximum net capacity	307230 GB (RAID-5 configured)
Integrated I/O	6 Gb SAS

Mechanical—expansion unit

Dimensions (H x W x D)	
• Drive tray	177.8 x 482.6 x 825.5 mm (7.0 x 19 x 32.5 in)
• Shipping carton	482.6 x 609.6 x 1009.7 mm (19 x 24 x 39.75 in)
Weight	
• Maximum weight	105.2 kg (232 lb)
• Maximum shipping weight	193.2 kg (426 lb)

Space requirements

Front—cooling	760 mm (30 in) clearance in front of the cabinet
Rear—cooling	610 mm (24 in) clearance behind the cabinet
Front of chassis—maintenance	760 mm (30 in) clearance in front of the cabinet
Rear of chassis—maintenance	610 mm (24 in) clearance behind the cabinet

Environmental—expansion unit

Temperature	
• Operating range	0 °C to +35 °C (+32 °F to +95 °F)
• Maximum rate of change	10 °C (50 °F) per hour
• Storage range	-10 °C to +50 °C (+14 °F to +122 °F)
Relative humidity (non-condensing)	
• Operating range	20 to 80%
• Storage range	10 to 90%
Acoustic noise	

• Sound power (standby operation)	65 dB max
• Sound pressure (normal operation)	68 dB max

Notes:
General technical information for the RAID systems are provided in the NetApp E-Series Storage Systems Site Preparation Guide (Information Web: http://www.netapp.com; Part number: 215-09029_A, December 2014)

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Ordering information

DSA E-Series Simplex Controller, 12 x 6 TB
High-performance, high-capacity storage system base unit, iSCSI disk array, 12 x 6 TB HDD
Order number **DSA-N2E7X6-12AT**

DSA E-Series Dual Simplex Controller, 12 x 6 TB
High-performance, high-capacity storage system base unit, iSCSI disk array, 12 x 6 TB HDD, dual controller
Order number **DSA-N2C7X6-12AT**

DSA E-Series 12-bay expansion unit, 12 x 6 TB
High-performance, high-capacity storage system expansion unit, iSCSI disk array, 12 x 6 TB HDD
Order number **DSX-N1D6X6-12AT**

DSA E-Series 60-bay expansion unit, 60 x 6 TB
High-performance, high-capacity storage system expansion unit, iSCSI disk array, 60 x 6 TB HDD
Order number **DSX-N6D6X6-60AT**

Accessories

DSA E-Series storage expansion 6 TB
6 TB HDD
Order number **DSA-EDTK-600A**

DSA E-Series rack
Empty rack, 40U
Order number **DSX-NRCK40-INT**

Services

SupportEdge Standard extension, 12-bay 4/6 TB
12-month extension of SupportEdge Standard next business day for DSA E2700 4 TB or 6 TB based 12-bay controller or expansion units, available for a 4th and a 4th/5th year as a standard
Order number **DSA-S2E7X46-SLE**

Parts replacement, 12-bay 4/6 TB
12-month service uplift to SupportEdge Standard: parts replacement within 4 hours for DSA E2700 4 TB or 6 TB based 12-bay controller or expansion units, available for in-warranty systems only
Order number **DSA-S2E7X46-4PR**

Non-returnable disk, 12-bay 4/6 TB
12-month non-returnable disk option for DSA E2700 4 TB or 6 TB based 12-bay controller or expansion units, available for in-warranty systems only
Order number **DSA-S2E7X46-NRD**

SupportEdge Standard extension, 60-bay 4/6 TB
12-month extension of SupportEdge Standard next business day for DSA E2700 4 TB or 6 TB based 60-bay expansion units, available for a 4th and a 4th/5th year as a standard
Order number **DSA-S6D6X46-SLE**

Parts replacement, 60-bay 4/6 TB
12-month service uplift to SupportEdge Standard: parts replacement within 4 hours for DSA E2700 4 TB or 6 TB based 60-bay expansion units, available for in-warranty systems only
Order number **DSA-S6D6X46-4PR**

Non-returnable disk, 60-bay 4/6 TB
12-month non-returnable disk option for DSA E2700 4 TB or 6 TB based 60-bay expansion units, available for in-warranty systems only
Order number **DSA-S6D6X46-NRD**

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