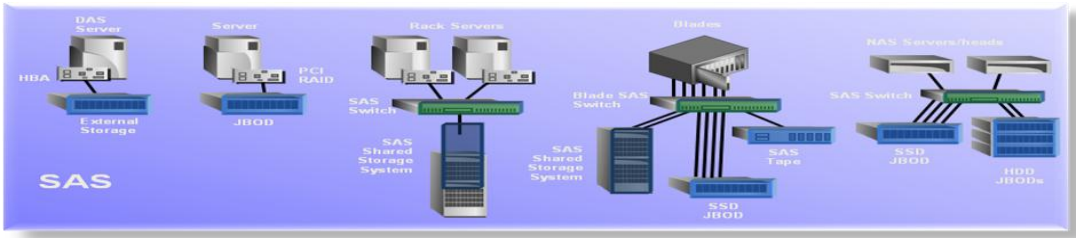
Product Brief

A54812-SW-02 Low Power/DataBolt 12-Port (48-Lanes) 12Gb/s SAS Switch

The Astek A54812-SW-02-SW-02 is a 1U high, 12-port (48-lanes) 12Gb/s SAS switch configured with 12 x 4 wide-port each capable of 48Gb/s with all the connectors on the front panel. The switch extends the capabilities of SAS in direct-attached storage (DAS) environments by allowing multiple servers to connect to one or more independent storage systems. Astek's A54812-SW-02 switch is designed to provide customers with an inexpensive and easy to use storage networking option for rack-mount server and storage installations in cloud computing, mega data-center and small- to medium-sized business (SMB) environments. The switch also supports DataBolt or End Device Frame Buffering (EDFB) which allows bandwidth optimization to support existing 6Gbps SAS and SATA media.

By enabling storage resources to be shared across multiple hosts, and managed effectively through SAS zoning, Astek SAS Switch products help customers to maximize storage resource utilization, eliminate islands of storage and simplify storage management, backup and upgrades. For longer distance connections up to 100 meters the A54812-SW-02 supports cable management and optical cables. The A54812-SW-02 is designed for High Availability (HA) applications with features such as Dual Redundant Externally Hot-Swappable Fans and Power Supplies.

Simple, plug-and-play integration is further enhanced by having complete SAS management available through a storage management utility. The utility is able to modify port configuration, including zoning, firmware management and viewing the topology of the SAS domain. It also offers flexibility to reconfigure without reconnecting cables or adding hardware. As the SAS physical layer supports both SAS and Serial ATA (SATA), the SAS Switch enables single switching infrastructure to address multiple classes of storage supporting a mix of SAS and SATA storage enclosures. A single SAS Switch can be used in a normal configuration, or two switches can be configured for a High Availability (HA) application where both ports of the storage are connected using redundant paths. If one of the switches fails, the second one will continue normal operation.



KEY APPLICATIONS

- Bandwidth optimization with DataBolt ™ (EDFB)
- Rack mount server and storage clusters
- Cloud and Mega Data Center Environments
- High-Availability Applications
- SMB and Departmental

FEATURES

- Provides exceptional price/performance value, combining flexibility, simplicity, and enterprise-class functionality
- Simple, easy integration
- Industry-standard SAS infrastructure
- Enables direct-attached –storage to be scaled as a low-cost storage network
- 12 SAS connectors (4 SAS phys per port for 48 12Gb/s lanes)
- External Debug and Smart serial ports
- All the connectors are on the front panel
- 48Gb/s SAS ports, aggregate bandwidth of 576Gb/s
- Supports cable management and optical cables
- Dual Hot-Swap Supplies
- Triple Hot-Swap Fans
- 1U high form factors
- SAS and SATA connectivity >1,000 devices
- Standard zoning compliant
- Out-of-band management utility
- OS independent

Ordering Information

A54812-SW-02-SW-02	SAS 12Gb/s switch with hot-swap fans and dual redundant power supplies Low power version

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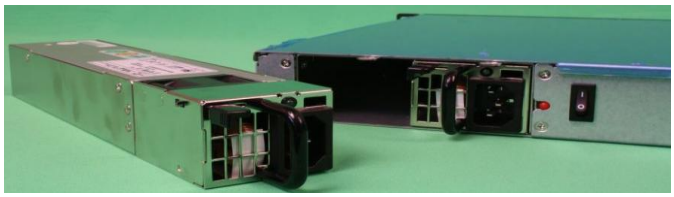
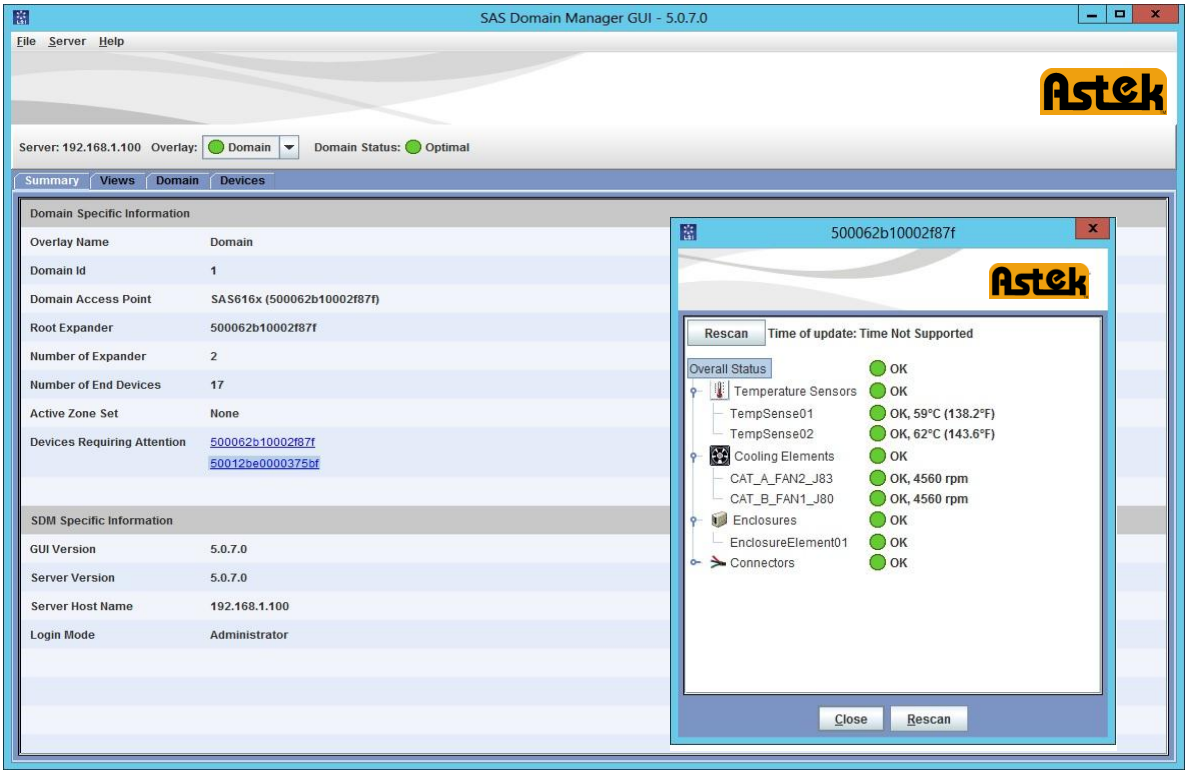
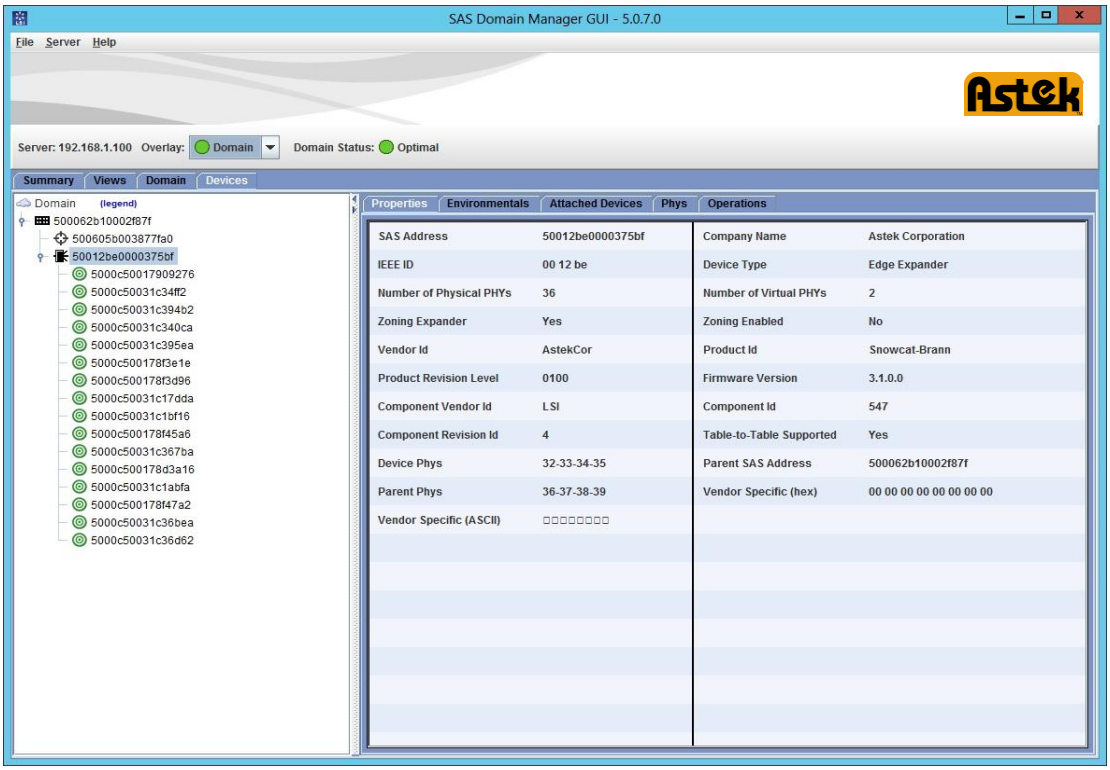
Technical Specifications

SAS Compliances	SAS 3.0		
SAS Protocols	SSP,STP and SMP		
SAS Ports Configuration	48 12Gb/s ports configured as 12 x4 Phy Wide ports		
SAS Bandwidths	Half Duplex Wide Port(4Phys)-48GB/s		Full Duplex Wide Port (4 phys) - 96Gb/s
Storage Types	3.0, 6.0 and 12Gb/s SAS and / or SATA		
Cable Management	Passive Copper Cables up to 6 meters Active Optical Cables up to 100 meters		
Zoning	T10 Zoning		
Zone Groups & Zone Sets	Up to 192 zone groups, Up to 16 zone sets		
Management Interface	10/100 Ethernet out-of-band		
Firmware	Field Upgradeable		
Connectors	SAS 12 SFF8644 (Mini-SAS)	Ethernet RJ-45	Serial CLI and Debug Ports
LED Indicators	Activity – 1 per Connector	Link/Fault – 1 per Connector	
Cable Management	SFF-xxxx Optical cable up to 100 meters		
Power Consumption	**40** watts nominal (no active cables); 50 watts max		
Power Supply	Dual Redundant (HA) Hot-Swap 220W 1U Supplies - 100-240 VAC @ 50/60Hz 		
Fans	Three (HA) Hot-Swap fans 		
Size	**1.75” x 19” x 12.0”**		
Environments **Temperature** **Relative Humidity**	**Operating** 15° to 45° C 5 to 90% non-condensing Airflow: 200 LFM	**Storage** -10° to +85° C 5 to 90% non-condensing	

SAS Domain Manager Software



SAS Domain Manager Summary Tab and Switch Environmental Information.



SAS Phy Device Information

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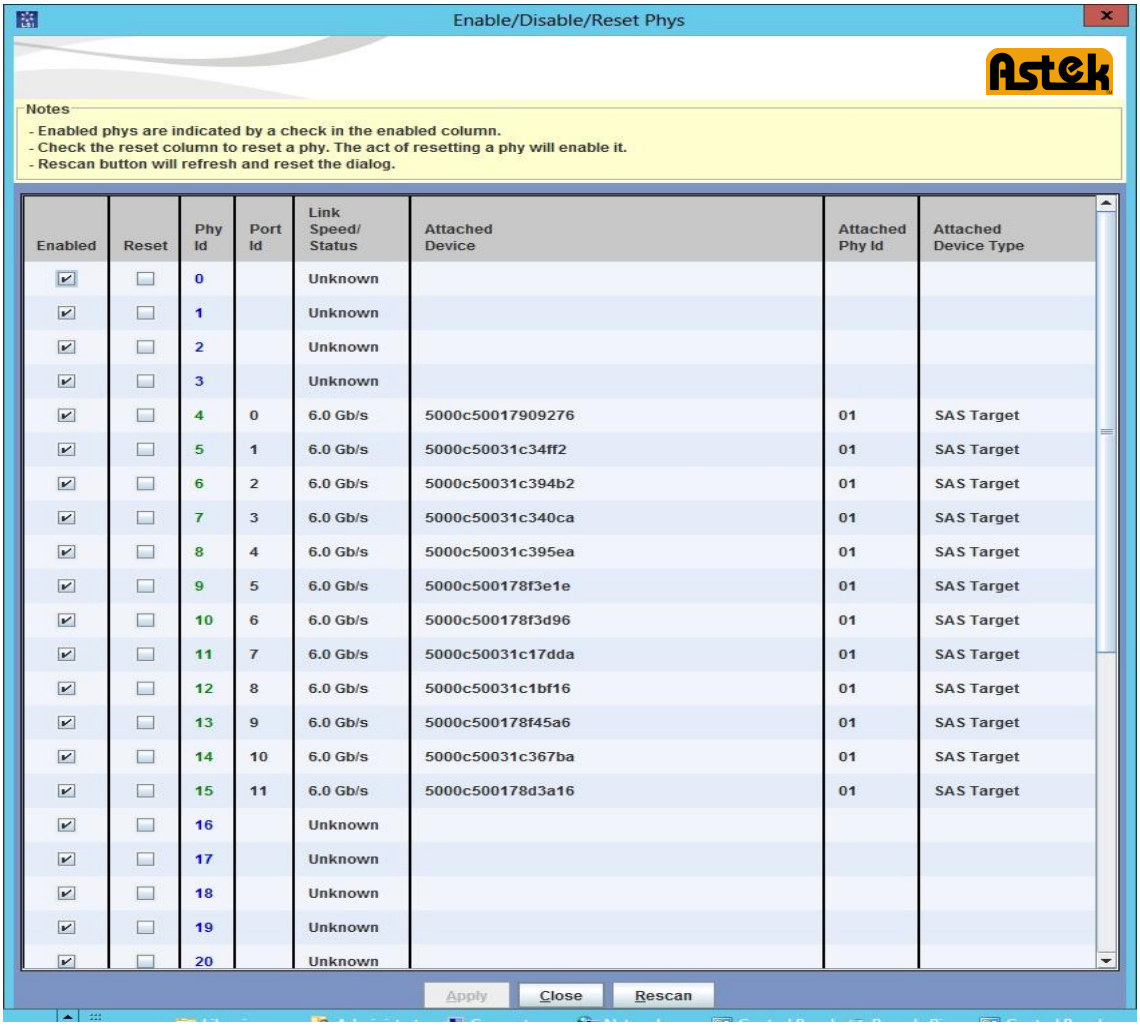
SAS is a connection-oriented, point-to-point technology. When a host (initiator) issues a request to read or write data, the switch automatically determines how to route the connection request from the initiator to the correct data storage device (target). By default, any SAS initiator or target connected to the Astek A54812-SW-02 switch can access any other connected initiator or target in the SAS domain, without restrictions. However, because the SAS domain grows to include multiple hosts and multiple storage volumes, you can segregate one host from another host, or restrict one host from accessing storage owned by another host. SAS zoning partitions the SAS topology to isolate selected hosts from each other or to permit selected hosts to access only selected storage volumes. The Astek A54812-SW-02 switch supports the full SAS 2.0 T10 zoning model.

Zoning provides several benefits:

- **Security** – Zoning prevents users from accessing information that is not available to them.
- **Manageability** – Zoning reflects operational categories, such as marketing or engineering. Zoning also can partition hosts that run different operating systems to minimize conflicts.
- **Performance** – Zoning enables faster boot time because the host must discover only the storage within its zone or zones.

SAS Phy Configuration Table.



Enabled	Reset	Phy Id	Port Id	Link Speed/ Status	Attached Device	Attached Phy Id	Attached Device Type
☑	☐	0		Unknown			
☑	☐	1		Unknown			
☑	☐	2		Unknown			
☑	☐	3		Unknown			
☑	☐	4	0	6.0 Gb/s	5000c50017909276	01	SAS Target
☑	☐	5	1	6.0 Gb/s	5000c50031c34ff2	01	SAS Target
☑	☐	6	2	6.0 Gb/s	5000c50031c394b2	01	SAS Target
☑	☐	7	3	6.0 Gb/s	5000c50031c340ca	01	SAS Target
☑	☐	8	4	6.0 Gb/s	5000c50031c395ea	01	SAS Target
☑	☐	9	5	6.0 Gb/s	5000c500178f3e1e	01	SAS Target
☑	☐	10	6	6.0 Gb/s	5000c500178f3d96	01	SAS Target
☑	☐	11	7	6.0 Gb/s	5000c50031c17dda	01	SAS Target
☑	☐	12	8	6.0 Gb/s	5000c50031c1bf16	01	SAS Target
☑	☐	13	9	6.0 Gb/s	5000c500178f45a6	01	SAS Target
☑	☐	14	10	6.0 Gb/s	5000c50031c367ba	01	SAS Target
☑	☐	15	11	6.0 Gb/s	5000c500178d3a16	01	SAS Target
☑	☐	16		Unknown			
☑	☐	17		Unknown			
☑	☐	18		Unknown			
☑	☐	19		Unknown			
☑	☐	20		Unknown			

About Astek Corporation

Astek manufactures storage products for embedded markets including medical, telecommunications and military applications. In addition to Host Bus Adapters, Astek also supplies Serial Attached SCSI solutions including edge and fan-out expanders.

For more information please visit the Astek web site at:
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October, 2016