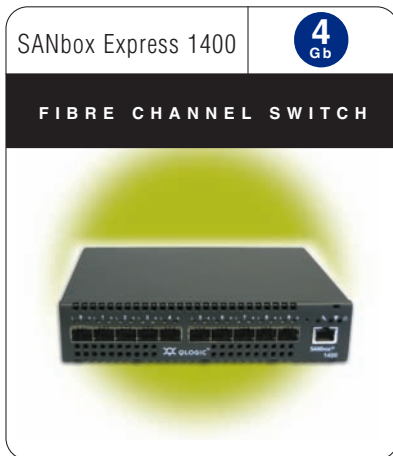




# SANbox<sup>®</sup> Express

10 Ports, 4Gbps  
Fibre Channel  
Switch

SANbox<sup>®</sup> 1400  
Series



## Features

- 10 4Gb device ports
- Auto-sensing, self-configuring ports
- SANsurfer<sup>®</sup> Express support
- Configuration Wizard software tool to simplify switch installation and fabric scaling
- In-band, out-of-band, Telnet and SNMP management access
- 1U half-width rack form-factor
- Non-Disruptive Code Load and Activation (NDCLA)
- Interoperable with all FC-SW-2 compliant Fibre Channel switches
- I/O StreamGuard for RSCN Suppression
- “No-Wait” routing – guaranteed maximum performance independent of data traffic



## Plug and Play Installation

Simple wizard tools lead you through the installation and configuration of the SAN. Seamless integration with the optional SANsurfer Express tool provides management of your SAN plus Microsoft VDS compliant storage from a single tool!

## Incredibly Low Cost

As an entry-level switch, its low cost means the smallest business can now afford and enjoy the benefits of networked storage without having to become a storage expert.

## Small, Powerful Package

At only 2lbs and 6” deep, the SANbox 1400 requires only half a slot to maximize your rack usage. Now, two units can be placed in a single slot for a total of 20 ports in 1U - maximum port density and power with minimum investment!

## Pervasive Interoperability

Interoperable with popular servers, storage and networking products from major manufacturers, including: ADIC, Brocade, Cisco, Computer Associates, Dell, EMC, Emulex, HDS, HP, IBM, LSI, McData, Microsoft, Quantum, StorageTek, Sun, VERITAS, and many others.



# SANbox Express™

4  
Gb

## TECHNICAL SPECIFICATIONS : SANbox® Express 1400 Series

### Standards

#### Fibre Channel Ports

- Physical & Signaling Interface Rev. 4.3 (FC-PH)
- Physical & Signaling Interface-2 (FC-PH-2)
- Physical & Signaling Interface-3 (FC-PH-3)
- Fabric Generic Requirements (FC-FG)
- Generic Services (FC-GS)
- Generic Services-2 (FC-GS-2)
- Generic Services-3 (FC-GS-3)
- Switch Fabric (FC-SW-2)
- Arbitrated Loop Rev. 4.6 (FC-AL)
- Arbitrated Loop-2 Rev. 7(FC-AL-2)
- Fibre Loop Attachment (FC-FLA)
- Tape Technical Report (FC-Tape)
- Virtual Interface Architecture Mapping (FC-VI)
- Element MIB Specification
- Fibre Alliance MIB Specification

#### Fibre Channel Classes of Service

- Classes 2, 3 connectionless

#### Modes of Operation

- Fabric
- Public Loop

### Performance Features

#### Fabric Port Speed

- 4Gb/s, full-duplex, auto-negotiating for compatibility with existing 1Gb and 2Gb devices

#### Fabric Latency

- Less than 0.4 µs (best case, no contention)
- Cut-through routing

#### Fabric Point-to-Point Bandwidth

- 848 MB/s Full Duplex per port

#### Fabric Aggregate Bandwidth

- Single chassis: Over 80 Gb/s (full duplex) end-to-end
- Non-blocking architecture

#### Maximum Frame Sizes

- 2148 bytes (2112 byte payload)

#### Per-port Buffering

- ASIC-embedded memory (non-shared)
- Each port has a guaranteed 8-credit zero wait state buffer for full performance up to 10km

### Scalability

#### Ports Per Chassis

- (10) 4Gb / 2Gb / 1Gb ports

#### Multi Switch Fabrics

- Supports E-port link to another switch
- In-order delivery of frames in all multi-switch and multi-link configurations

#### Fabric Port Types

- All ports can assume the following states:
  - F\_port: Fabric
  - FL\_port: Fabric loop (public loop)
  - E\_port: Switch-to-switch (single connection)
- Ports are auto-discovering, self-configuring

#### Media Type

- Hot-pluggable, industry-standard SFPs (Small Form Pluggable)

#### Supported SFP Types

- Shortwave: 500 m (1,640 ft.)
- Longwave: 10 km (6.2 mi.)

#### Media Transmission Ranges

- Optical
  - Shortwave: 500 m (1,640 ft.)
  - Longwave: 10 km (6.2 mi.)

#### Cable Types

- 50/62.5 micron multimode fiber optic
- 9 micron single-mode fiber optic

### Interoperability

- Compatible with FC-SW-2 compliant switches
- Management interoperability with leading SAN management applications

### Fabric Management

#### Management Processor

- Pentium class Processor

#### Management Methods

- SNMP, Telnet, GS-3

#### Access Methods

- In-band
- Ethernet 10/100 BaseT with RJ45

#### Diagnostics

- Power-up self-test of all functionality except media modules
- Field-selectable full self-test including media modules

#### Fabric Services

- Simple Name Server
- Fabric Zoning
- Registered State Change Notification (RSCN)
- I/O StreamGuard™

#### User Interface

- LED indicators, command-line console, and web-based utilities

### Mechanical

#### Enclosure Types and Options

- Desktop/shelf top with included rubber feet
- Optional rack mounting kit for mounting up to two SANbox 1400 units

#### Dimensions

- Width: 190.5 mm (7.5")
- Height: 41.9 mm (1.65") (1U)
- Depth: 155.6 mm (6.125")

#### Weight

- 1.1 kg (2 lbs 8 oz)

#### Power Supply/Cooling

- External laptop-style power supply
- Front to back airflow with integrated cooling fan

### Environmental

#### Operating

- Temperature: 5 to 40 °C (41 to 104°F)
- Humidity: 15% to 90% noncondensing
- Altitude: 0 to +15,000 feet
- Vibration: IEC 68-2  
5-500 Hz, random, 0.21 G rms  
IEC 68-2
- Shock: 4 g, 11ms, 20repetitions

#### Non-Operating

- Temperature: -40°C to 70°C (-40 to 158 °F)
- Humidity: 25% to 93% noncondensing
- Altitude: 0 to +50,000 feet
- Vibration: IEC 68-2  
5 to 500 Hz, random, 2.09 G rms,  
IEC 68-2
- Shock: 30g, 292 ips, 3 repetitions, 3 axis

### Electrical

#### Operating Voltage

- 90-265 Vac, 47-63 Hz

#### Power Source Loading

- 20VA

#### Heat Output

- 25W maximum (with full optics configuration)

### Regulatory

#### Safety Standards:

- UL 60950 (USA)
- CSA 22.2 No.60950 (Canada)
- EN60950 (EC)
- CB Scheme-IEC 60950

#### Emissions Standards

- FCC Part 15B Class A (USA)
- VCCI Class A ITE (Japan)
- ICES-03 Issue 3 (Canada)
- EN55022 Level A (EC)
- CISR 22, Class A

#### Voltage Fluctuations

- EN 61000-3-3

#### Ordering Information

- |                |  |
|----------------|--|
| SB1404-10AJ-E  | Switch unit with (10) 4Gb small form-factor pluggable optics (SFP) |
| SB1400-RACKKIT | Optional rack mounting kit (supports up to two SANbox 1400 units)  |
| SB1400-PS      | External power supply replacement kit                              |

#### Harmonics

- EN 61000-3-2

#### Immunity

- EN 55024:1998

#### Marking

- FCC Part 15
- UL (USA)
- TUV (USA)
- cUL (Canada)
- cTUV (Canada)
- TUV (Europe)
- VCCI
- CE

For a list of authorized resellers, visit [www.qlogic.com/buyqlogic/home\\_buy.asp](http://www.qlogic.com/buyqlogic/home_buy.asp)



Corporate Headquarters  
QLogic Corporation  
26650 Aliso Viejo Parkway  
Aliso Viejo, CA 92656  
949.389.6000

Europe Headquarters  
QLogic (UK) LTD.  
Surrey Technology Centre  
40 Occam Road Guildford  
Surrey GU2 7YG UK  
+440(0)1483 295825

[WWW.QLOGIC.COM](http://WWW.QLOGIC.COM)