



BLACK BOX[®]

NETWORK SERVICES

Plug & Play Dual Fibre Switches



Key Features

- ▶ (7) or (8) 10/100Base-TX Copper Ports.
- ▶ (2) or (1) 100Base-FX Fibre Ports.
- ▶ Redundant Fibre Ports configuration.
- ▶ WDM Single-Strand and Single mode versions available.

The LBS309AE-2FX devices are powerful, high-performance Ethernet/Fast Ethernet switches with (2) fibre uplink ports. All (8) twisted pair ports support auto-negotiation operation (N-Way). The fibre ports support 100-Mbps according to the 100Base-FX standard. These switches are an ideal solution for micro-segmenting large networks into smaller sub-nets for overall improved performance.

The LBS309AE-2FX switch can be configured with (8) active copper ports + (1) active fibre optic port; or with (7) active copper ports and (2) active fibre optic ports. The configuration with (2) fibre ports allows you to create a "main" and "back-up" fibre optic link. Both fibre optic lines must be routed through a diffe-

rent physical path between the two sites that they interconnect. No harm done if the main link breaks, the back-up will take over!

For customer sites with a shortage of extra fibre optic lines, the LBS309AE-2FX also exists in "single-strand-fibre" versions. By making use of the WDM-technique*, the switch can "send" a transmit signal and "receive" a receive signal on the same physical fibre. The WDM-technique uses two different wavelengths (1310 and 1550-nm) in a single fibre for transmitting and receiving. In practice, this means that you can double the capacity of a duplex fibre optic link between two sites by using a pair of "WDM" LBS309AE switches. You only have to buy a matching pair of WDM switches:

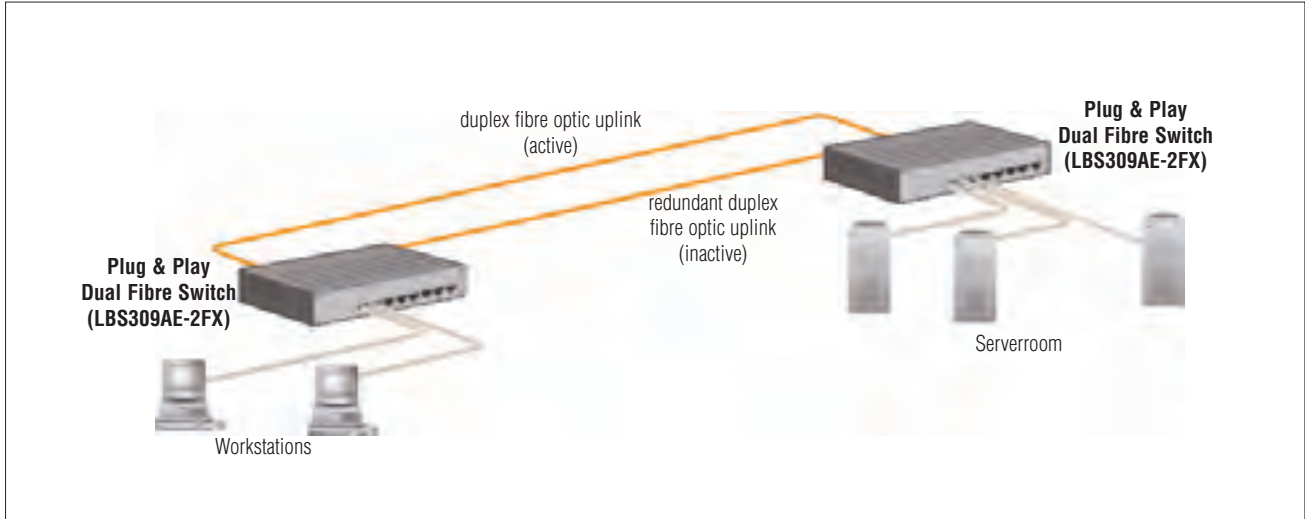
* see Fiber Transmission Information on page 2

Matching Switches for Multimode applications:

Switch A	Transmits on	Receives on	Switch B	Transmits on	Receives on
LBS309AE-2FXSCWA	1310-nm	1550-nm	LBS309AE-2FXSCWB	1550-nm	1310-nm

Matching Switches for Single Mode applications:

Switch A	Transmits on	Receives on	Switch B	Transmits on	Receives on
LBS309AE-2FXSCWA4	1310-nm	1550-nm	LBS309AE-2FXSCWB4	1550-nm	1310-nm



Specifications

Standards — IEEE 802.3 10Base-T Ethernet; IEEE 802.3u 100Base-TX, 100Base-FX Fast Ethernet.

Switching Mechanism — Store-and-Forward

Indicators — Per port: LEDs indicating Link, Activity, FDX/HDX and Speed; Per switch: Power LED

MAC addresses — 2KB MAC address entries

Number of ports —

(8) 10/100Mbps auto-negotiation MDI/MDX Copper ports;
 (2) 100Mbps Fibre Duplex ST, Duplex SC or Simplex SC ports;
 (1) Copper port & (1) Fibre port are shared.

Connectors —
 LBS309AE-2FXST/SC/SCSM30:
 (8) RJ-45 STP + (2) Fibre duplex ST/SC;
 Other models: (8) RJ-45 STP + (2) Fibre

simplex SC.

Temperature Tolerance —
 Operating: 0-50°C;
 Storage: -20 to + 60°C

Humidity Tolerance — Operating:
 5 to 90% non-condensing

Power — 100-240 VAC, 50-60 Hz

Size — 34H x 240W x 155D mm

Weight — 1.6 Kg

Safety and EMI certificates — CE & FCC-A

What's included — :
 (1) Switch
 (1) Power Cord, 1.8-m
 (1) Manual on CD-ROM

Fibre Transceiver Information (*)

MULTIMODE models

	LBS309AE-2FXST	LBS309AE-2FXSC
Connector type	ST	SC
Wavelength	1310 nm	1310 nm
Typical Distance	2-km	2-km
Min. TX Power	-19 dBm	-19 dBm
Max. TX Power	-14 dBm	-14 dBm
Sensitivity	-30 dBm	-30 dBm
Link Budget	11 dB	11 dB

SINGLE MODE model

	LBS309AE-2FXSCSM30
Connector type	SC
Wavelength	1310 nm
Typical Distance	30-km
Min. TX Power	-15 dBm
Max. TX Power	-8 dBm
Sensitivity	-34 dBm
Link Budget	19 dB

to be continued next page

(*) specifications may change without prior notice

Fibre Transceiver Information continued (*)

SINGLE MODE WDM models

	LBS309AE-2FXSCWA
Connector type	SC
TX Wavelength	1310 nm
RX Wavelength	1550 nm
Typical Distance	20-km
Min. TX Power	-14 dBm
Max. TX Power	-8 dBm
Sensitivity	-33 dBm
Link Budget	19 dB

LBS309AE-2FXSCWB

	LBS309AE-2FXSCWB
Connector type	SC
TX Wavelength	1550 nm
RX Wavelength	1310 nm
Typical Distance	20-km
Min. TX Power	-14 dBm
Max. TX Power	-8 dBm
Sensitivity	-33 dBm
Link Budget	19 dB

SINGLE MODE WDM models

	LBS309AE-2FXSCWA4
Connector type	
TX Wavelength	1310 nm
RX Wavelength	1550 nm
Typical Distance	40-km
Min. TX Power	-8 dBm
Max. TX Power	-3 dBm
Sensitivity	-33 dBm
Link Budget	25 dB

LBS309AE-2FXSCWB4

	LBS309AE-2FXSCWB4
Connector type	
TX Wavelength	1550 nm
RX Wavelength	1310 nm
Typical Distance	40-km
Min. TX Power	-8 dBm
Max. TX Power	-3 dBm
Sensitivity	-33 dBm
Link Budget	25 dB

(*) specifications may change without prior notice

Ordering information

ITEM	Type Fibre Port	CODE
Switch with (8) UTP + (2) DUPLEX fibre ports	Multimode, ST	LBS309AE-2FXST
	Multimode, SC	LBS309AE-2SXSC
	Single Mode, SC, 30km	LBS309AE-2FXSCSM30
Switch with (8) UTP + (2) SSF fibre ports	Multimode, SC	
	TX 1310-nm	
	RX 1550-nm	LBS309AE-2FXSCWA
	Multimode, SC	
	TX 1550-nm	
	RX 1310-nm	LBS309AE-2FXSCWB
	Single Mode, SC	
	TX 1310-nm	
RX1550-nm	LBS309AE-2FXSCWA4	
Single Mode, SC		
TX 1550-nm		
RX1310-nm	LBS309AE-2FXSCWB4	

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