



Highlights

Integrated, Euro-DOCSIS 2.0 SURFboard cable modem

Router with four-port 10/100 fast Ethernet switch

- Half-/full-duplex
- Auto-MDIX cross-over cable detection

IEEE 802.11b/g wireless access point

Advanced firewall

- Stateful packet inspection
- Intrusion detection
- Denial-of-service attack prevention

Network up to 253 PCs¹ (full Class "C" network)

- VPN pass-through
IPSec, PPTP, L2TP

SBG940E

SURFboard® Wireless Cable Modem Gateway

The Motorola SURFboard SBG940E delivers state-of-the-art high-speed wireless Internet access, networking, and security in one convenient package.

Three Advanced Networking Products in One

Motorola's SBG940E SURFboard Wireless Cable Modem Gateway combines an industry-leading SURFboard cable modem, IEEE 802.11b/g wireless access point, and advanced firewall in one compact unit. Eliminating the need for three separate products, the SBG940E is a cost-effective and efficient solution for customers who want to maximize the potential of their existing resources. The perfect networking solution for the home, home office, or small business, the SBG940E allows customers to create a secure, protected network to share a broadband connection, files, and networked printers and peripherals, with or without wires.

Euro-DOCSIS 2.0 = Upstream Capacity

Featuring the latest Euro-DOCSIS 2.0 A-TDMA and S-CDMA technology, the SBG940E's integrated SURFboard cable modem provides up to three times the upstream capacity of Euro-DOCSIS 1.0/1.1 systems. The SBG940E is interoperable and backward-compatible with Euro-DOCSIS 1.0 and 1.1 for fast and timely deployment without service interruption, allowing operators to maximize their current infrastructure investments while offering additional services.

Wireless Flexibility

The Motorola SBG940E merges the advantages of the SURFboard cable modem with the mobility of a wireless LAN (WLAN). It includes an integrated IEEE 802.11b/g access point that (with optional

accessories) allows customers to roam throughout the home or office while remaining connected to the network. With the SBG940E, customers can place computers and peripherals where it's convenient, not just where there's an available connection.

Superior Transmission Power

The SBG940E offers an array of competitive advantages by providing superior transmission power. Its detachable antenna can be replaced by an optional, external high-gain antenna (choose from directional, bi-directional, or omni-directional), and its adjustable output power can be configured, allowing just the right amount of signal to fill the required area without bleed-over to other homes or businesses.

Secure Connection

Finally, Motorola's SBG940E is secure. It includes an advanced firewall that helps protect the network from hackers and other outside interference while allowing desired data to pass through with ease. The firewall embedded in the gateway provides commercial-class protection through built-in Denial of Service attack prevention, Stateful Packet Inspection, and Intrusion Detection. The firewall also allows VPN tunnel protocols to pass through, hiding the network from the outside world.

DATA SHEET

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Wireless

STANDARDS COMPLIANCE

IEEE 802.11b/g
IEEE 802.11b DSSS
IEEE 802.11b/g OFDM

RF FREQUENCY RANGE

North America	11 channels with center frequencies from 2.412 GHz to 2.462 GHz
Japan	Up to 14 channels with center frequencies from 2.412 GHz to 2.835 GHz

DATA RATE AND MODULATION

1 Mbps DBPSK
2 Mbps DQPSK
5.5 or 11 Mbps CCK
6, 9, 12, 18, 24, 26, 48, or 54 Mbps OFDM

CHANNELS

Europe	13
Spain	2
France	4
US	11
Japan	14

SEND AND RECEIVE

Transmit Power	17 dBm (EIRP)
Receive Sensitivity	-65 dBm at 54 Mbps

Ethernet

ROUTER

Ethernet Standards Compliance IEEE 802.3, IEEE 802.3u
Uplink Ports Four

Environmental

TEMPERATURE, HUMIDITY, ALTITUDE

Operating Temperature	0 °C to 40 °C (-32 °F to 104 °F), -150 to 10,000 ft
Storage Temperature	-30 °C to 80 °C (-22 °F to 176 °F)
Humidity	5% to 95% RH, non-condensing
Mechanical Antenna	One external removable antenna with a unique connector per FCC requirements One external, adjustable, non-removable antenna
LED Indicators	Power, Receive, Send, Online, Internet, USB, Wireless, Ethernet (four)
Interfaces	One AC Power, one F-Type, four RJ-45, one USB Series B

General

ELECTRICAL

Input Voltage Range	100 VAC to 240 VAC, 50 Hz to 60 Hz
Power Consumption	9 W (nominal)

PHYSICAL

Cable Interface	F-connector, female, 75 Ω
CPE Network Wired Interface	USB, Ethernet 10/100 Ethernet (auto-sensing)
CPE Network Wireless Interface	IEEE 802.11b/g
Data Protocol	TCP/IP
Dimensions	11.5 in W x 5.5 in D x 2.5 in H (290 mm W x 160 mm D x 70 mm H)
Weight	1.8 lb (816 g) (unit only)

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Communication

DOWNSTREAM

Modulation	64 or 256 QAM
Max. Data Rate*	51 Mbps
Bandwidth	8 MHz
Symbol Rate	64 QAM 6.952 Msym/s, 256 QAM 6.952 Msym/s
Operating Level Range	64 QAM 43 to 73 dB μ V, 256 QAM 47 to 77 dB μ V
Input Impedance	75 Ω (nominal)
Frequency Range	108 MHz to 860 MHz

UPSTREAM

Modulation	8****, 16, 32****, 64****, 128**** QAM or QPSK
Max. Channel Rate**	30 Mbps
Bandwidth	200 kHz, 400 kHz, 800 kHz, 1.6 MHz, 3.2 MHz, 6.4**** MHz
Symbol Rates	160, 320, 640, 1280, 2560, 5120**** ksym/s
Operating Level Range	
A-TDMA	68 to 114 dB μ V (32 QAM, 64 QAM)
	68 to 115 dB μ V (8 QAM, 16 QAM)
	68 to 118 dB μ V (QPSK)
S-CDMA	68 to 113 dB μ V (all modulations)
Output Impedance	75 Ω (nominal)
Frequency Range	5 MHz to 65 MHz (edge to edge)

*Actual speeds will vary, and are often less than the maximum possible. Data transmission speed is approximate and depends on the configuration and capacity of your network, as well as the amount of traffic on the network.

** Actual data throughput will be less due to physical layer overhead (error correction coding, burst preamble, and guard interval).

*** With A-TDMA- or S-CDMA-enabled CMTS.

**** With S-CDMA-enabled CMTS.

Certain features may not be activated by your service provider, and/or their network settings may limit the feature's functionality. Additionally, certain features may require a subscription. Contact your service provider for details.

All features, functionality, and other product specifications are subject to change without notice or obligation.



MOTOROLA

Motorola, Inc. 101 Tournament Drive, Horsham, Pennsylvania 19044 U.S.A. www.motorola.com

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