



# SBG901

## SURFboard® Wireless Cable Modem Gateway

State-of-the-art wireless networking technology in a cost-effective, conveniently-sized package.

### Highlights<sup>1</sup>

#### Easy to set up and use

#### Expandable

Features up to 16 Service Identifiers (SIDs) for future expansion of enhanced features

#### Remote configuration and monitoring

Help to reduce support costs and aid troubleshooting

#### DOCSIS® 2.0 Certified

Interoperates with DOCSIS 2.0/1.1

Motorola's SBG901 SURFboard Wireless Cable Modem Gateway combines an industry-leading cable modem, an IEEE 802.11b/g wireless access point, and an advanced firewall into one compact product. It's the perfect networking solution for the home, home office, or small business, allowing users to create a custom network to share a single broadband connection, files, networked printers, and peripherals without wires. Cost-effective and efficient, the SBG901 enables users to maximize the potential of their existing resources. The SBG901 also offers easily managed, enhanced network security for both wired and wireless users.

The SBG901's new User GUI enables an easy set up and ease of use for the operator.

Designed for Service Assurance, the SBG901 is compatible with Motorola's NBBS Device Management Platform and with Motorola's eCare for remote access customer component troubleshooting and configuration, eliminating unnecessary truck rolls.

#### Integrated DOCSIS 2.0 Cable Modem

The integrated Motorola SURFboard cable modem incorporates the newest DOCSIS 2.0 silicon for improved performance over legacy DOCSIS products, design enhancements for a more environmentally friendly product, and feature evolution to meet the changing needs of MSO and end users. The Motorola SBG901 is the ideal device for expanding an operator's home network service offerings.

#### Wireless LAN Mobility

The Motorola SBG901 merges the advantages of the SURFboard cable modem with the mobility of

a wireless LAN (WLAN). It includes an integrated IEEE 802.11b/g Wi-Fi® access point that allows users (with optional accessories) to roam around the home or small business and remain connected to the network. Now subscribers can place computers and peripherals where they're convenient, not just where there's an available connection.

The SBG901's internal antennas streamline the look and feel of the unit while eliminating the possibility of breakage.

#### Configurable Output Power

The SBG901 offers an array of competitive advantages by providing superior transmission power with a close to omni-directional antenna, which delivers excellent coverage for the user. The SBG901's improved range has increased user data throughput wireless data range of greater than 21 Mbps<sup>2</sup>. The SBG901's adjustable output power can be configured, allowing just the right amount of signal to fill the required area without interfering with homes or businesses.

#### Commercial-Class Security

Finally, Motorola's SBG901 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.



### Motorola Cares for the Environment

Motorola believes in "going green" — we have a global commitment to sustaining the environment. Motorola has been working for years to continually improve our environmental profile. We are in step with our customers and their increasing interest in partnering with a company that will help them reduce their carbon footprint, while offering compelling products that will help them grow their eco-conscious customer base.

### Motorola Designed the SBG901 Series to Minimize its Impact on the Environment

Motorola's modems comply with international environmental and energy efficient standards, including ENERGY STAR qualified power supplies, European Code of Conduct compliance for both the power supply and modem, and lead-free circuit boards as certified by RoHS compliance.

### Packaging

The SBG901 Series uses Motorola's new, environmentally friendly package design: our modems ship in single pack boxes. By both eliminating the suspension plastic and reducing the box size, Motorola is helping to reduce the environmental impact of the SBG901 Series. As an even more impactful step, operators may choose to receive the products in a bulk package, thus reducing the extra waste and transport weight associated with single packages. Motorola's bulk packaging solutions eliminate excess installation CDs and USB cables. Additionally, customers have the option to reduce the number of cables shipped with each unit. The packaging is 100% recyclable. Our packaging is now labeled with standard recycling codes (such as ♻️) to make it easier for our customers to identify recycling opportunities.

## Wi-Fi

### Wireless Access Point



### User-friendly Installation

Motorola's integrated SBG901 includes stateful firewall protection and WEP (Wired Equivalency Privacy). The SBG901 is also equipped with a built-in, easy-to-use Motorola Wi-Fi installation wizard — a 'zero-touch' auto Wi-Fi provisioning tool — which seamlessly configures a secure Wi-Fi connection on a user's machine. When the Wi-Fi wizard is finished, a secure WPA (Wi-Fi Protected Access) encrypted wireless connection is established to the gateway, protecting the user's machine from hacker attacks. Motorola's embedded software enables Wi-Fi deployments with high levels of quality, reliability, and customer satisfaction, with low operational and support costs for the MSO.

### Service Assurance

Supporting the Wi-Fi home network is a new challenge for the cable industry. As the leading worldwide provider of DOCSIS® products, Motorola is helping ease cable operators into Wi-Fi delivery. By combining the highest-performing and lowest cost of ownership modems in the industry, with easy-to-use Wi-Fi installation and pairing tools as well as advanced remote management features, the SBG901 is offering an all-in-one approach to broadband home networking. In addition, Motorola's field-proven NBBS device management software provides the MSO with intelligent management, auto-provisioning, and remote management features to improve accuracy, efficiency, and customer satisfaction. These value-adding features enable remote device administration for improved accuracy and reduced support costs. The SBG901 is compatible with Motorola's NBBS scalable, carrier-grade software platform that enables cable operators to remotely access, configure, monitor, and troubleshoot their full portfolio of consumer devices, home networks, and services.

## DATA SHEET

SBG901 SURFboard Wireless Cable Modem Gateway

## General

### STANDARDS COMPLIANCE

IEEE	802.11b/g, 802.11b DSSS, 802.11b/g OFDM, 802.1d, 802.3, 802.3u, 802.31CPE
Data	DOCSIS 2.0
Wireless	Wi-Fi Alliance Certified

### WLAN RF CENTER FREQUENCY RANGE

North America	2.412 GHz to 2.462 GHz
---------------	------------------------

### DATA RATE AND MODULATION TYPES

1 Mbit/s DBPSK; 2 Mbit/s DQPSK; 5.5 Mbit/s, 11 Mbit/s CCK; 6 Mbit/s, 9 Mbit/s, 12 Mbit/s, 18 Mbit/s, 24 Mbit/s, 36 Mbit/s, 48 Mbit/s, 54 Mbit/s OFDM Options

### INTERFACES

Cable interface	F-connector, female, 75 $\Omega$
CPE wired interface	10/100 Fast Ethernet (auto-sensing)
CPE wireless interface	802.11b/g
Data protocol	TCP/IP

### NETWORK MANAGEMENT

SNMP v1, v2c, v3; IP v4 addressing; LAN-side DHCP server; NAT, NAPT

### TRANSMIT POWER

17 dBm (EIRP) in 802.11 g Mode; 20 dBm (EIRP) in 802.11b Mode

### RECEIVE SENSITIVITY\*

-74 dBm at 54 Mbps

## Downstream

### MODULATION

64 or 256 QAM

### MAXIMUM DATA RATE<sup>2</sup>

DOCSIS  $\leq$  38 Mbps

### BANDWIDTH

DOCSIS 6 MHz

### SYMBOL RATES

64 QAM 5.069 Msym/s, 256 QAM 5.361 Msym/s

### OPERATING LEVEL RANGE

-15 to 15 dBmV

### INPUT IMPEDANCE

75  $\Omega$  (nominal)

### FREQUENCY RANGE

88 to 860 MHz

\* Receiver sensitivity indicated under ideal conditions.

## Upstream

### MODULATION

8\*\*\*, 16, 32\*\*\*, 64\*\*\*, 128\*\*\*\* QAM or QPSK

### MAXIMUM DATA RATE<sup>2</sup>

30 Mbps

### BANDWIDTH

200 kHz, 400 kHz, 800 kHz, 1.6 MHz, 3.2 MHz, 6.44 MHz

### SYMBOL RATES

160, 320, 640, 1280, and 2560, and 51204 ksym/s

### OPERATING LEVEL RANGE<sup>4</sup>

A-TDMA	8 to 54 dBmV (32 and 64 QAM) 8 to 55 dBmV (8 and 16 QAM) 8 to 58 dBmV (QPSK)
S-CDMA	8 to 53 dBmV (all modulations)

### OUTPUT IMPEDANCE

75  $\Omega$  (nominal)

### FREQUENCY RANGE

DOCSIS 5 to 42 MHz (edge to edge)

## Network

### GATEWAY

DHCP, NAT, VPN tunneling; static routing and dynamic IP routing; SPI firewall with DoS protection and intrusion prevention; port, packet, and URL keyword filtering; full suite of ALGs; UPnP IGD 1.0

### WIRELESS LAN

802.11b/g Wi-Fi

### NETWORK MANAGEMENT

SNMP v1, v2c, v3, IP v6 addressing; LAN-side DHCP server; NAT, NAPT

Wireless device and its corresponding networks supportable by Motorola's NBBS Management System

### 802.11i SECURITY

WEP-64/128, WPA-PSK, WPA, WPA2, TKIP, AES, 802.1x, 802.11i (pre-authentication)

### DEVICE PAIRING

User-friendly Wi-Fi protected setup (WPS) for secure WPS compatible device pairing

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

\*\*\*\* With S-CDMA enabled CMTS

### The SBG901 Wireless Cable Modem Gateway delivers:

- The speed of a DOCSIS 2.0 cable modem
- The mobility of a wireless LAN and the simplicity of "no new wires" technology
- The security of a firewall

### Three networking products in one

Integrated DOCSIS<sup>®</sup> 2.0 SURFboard cable modem, router with one 10/100 Fast Ethernet port and auto-MDIX cross-over cable detection, and IEEE 802.11b/g wireless access point

### Easy setup

An included CD-ROM provides an Installation Assistant, a Wireless Security Set Up Wizard, and multi-lingual product documents

### Web-based management

Manage data and wireless network using a Web-based interface

### Advanced security

Built-in firewall with stateful Packet Inspection (SPI), intrusion detection, and Denial of Service (DoS) attack prevention

### Extensible networking

Network up to 253 desktop computers, laptops, and other Ethernet or wireless devices<sup>2</sup> to create a full Class C network

### Enterprise-capable

VPN pass-through (IPSec, PPTP, L2TP)

## DATA SHEET

SBG901 SURFboard Wireless Cable Modem Gateway

## Network, cont.

<sup>1</sup> 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 shall not be liable for, and expressly disclaims, any direct or indirect liabilities, damages, losses, claims, demands, actions, causes of action, risks, or harms arising from or related to the services provided through this equipment. Important: Be aware that you will not be able to make any calls using this VoIP device if your broadband connection is not functioning properly.

<sup>2</sup> Actual speeds will vary, and are often less than the maximum possible. Upload and download speeds are affected by several factors, including, but not limited to, network traffic and services offered by your cable operator or broadband service provider, computer equipment, type of server, number of connections to server, and availability of Internet router(s).

<sup>3</sup> Actual speeds will vary. Maximum speeds are only attainable with A-TDMA or S-CDMA technology.

<sup>4</sup> Older versions of Windows, although not specifically supported, will work with this cable modem.

### REGULATORY DOMAINS

To include US, Canada, ETSI, World

### TRANSMIT POWER OUTPUT

IEEE 802.11b 20 dBm (EIRP)  
IEEE 802.11g 17 dBm (EIRP)

### RECEIVER SENSITIVITY

-74 dBm at 54 Mbps

## Electrical

### INPUT VOLTAGE RANGE

100 to 240 VAC, 50 to 60 Hz

### POWER CONSUMPTION

9 W (nominal)

## Physical

### TEMPERATURE

Operating 32 °F to 104 °F (0 °C to 40 °C),  
-150 to 10,000 ft  
Storage -22 °F to 158 °F  
(-30 °C to 70 °C)

### HUMIDITY

5% to 95% (non-condensing)

### DIMENSIONS

5.7 in H x 5.7 in W x 1.5 in D  
(146.0 mm x 146.0 mm x 38.0 mm)

### WEIGHT

15 oz (0.42 kg) (unit only)

## Compatibility

### PLATFORM

PC	90496, Pentium, or later; Windows® Vista™, 2000, or XP; or Linux with Ethernet connection <sup>4</sup>
Macintosh®	Power PC or later; OS 9 or higher; Ethernet connection
UNIX®	Ethernet connection
Home Networking	Ethernet router or wireless access point

## Environmental

Power supply meets H.R.6, EnergyStar, and CoC (European Code of Conduct) requirements

100% recyclable packaging

Unit meets CoC requirements for Energy Consumption of Broadband Equipment

Unit is RoHS compliant (lead free)



**MOTOROLA**

Motorola, Inc. [www.motorola.com](http://www.motorola.com)



Powered by an  
ENERGY STAR®  
qualified adapter  
for a better  
environment

MOTOROLA, the Stylized M Logo, and SURFboard are registered in the U.S. Patent and Trademark Office. Windows is a registered trademark and Vista is a trademark of Microsoft Corporation in the U.S. and/or other countries. Linux is a registered trademark of Linus Torvalds. UNIX is a registered trademark of the Open Group in the United States and other countries. Macintosh is a registered trademark of Apple Computer, Inc. DOCSIS and Cable Home are registered trademarks of Cable Laboratories, Inc. Wi-Fi and the Wi-Fi Alliance logo are registered marks of the Wi-Fi Alliance. All other product or service names are the property of their respective owners. © Motorola, Inc. 2009. All rights reserved