



# SURFboard<sup>®</sup> SBV5121

## Digital Voice Modem

IP telephony converges with cable data service in one convenient package.

Unlock the potential of telephone service over your broadband cable connection.

### Highlights

Easy to use and simple to set up

Plug-and-play installation

Front-panel, easy-to-read operational status LEDs for power, data activity, and voice status

Intuitive, built-in Web-based diagnostics for quick and easy troubleshooting

Up to two lines (RJ-11) of full featured telephone service

10/100Base-T Ethernet (RJ-45) or a USB port for high-speed data access

Support for CLASS services (caller ID, call waiting, three-way calling, etc.)

### Fast, Convenient, Reliable

The next-generation Motorola SURFboard SBV5121 Digital Voice modem is based on Motorola's proven cable modem experience. By using industry standard signaling protocols, the SBV5121 provides high-speed Internet access and up to two lines of primary line voice-over-IP (VoIP) telephone service over cable's broadband connection to the home. The SBV5121's two telephone lines are terminated in two RJ-11 connectors. In addition, its integrated cable modem connects to a computer through either a 10/100Base-T (RJ-45) Ethernet or a USB data port.

The SBV5121 Digital Voice Modem is an intelligent way to communicate converging voice and data on one network.

### A Single Solution for Intelligent Convergence

The SBV5121 enables:

- One infrastructure for communication services
- One bill for voice and data services
- Simultaneous use of phone lines and high-speed data services
- Support for a variety of CLASS features provided today by the telephone company (caller ID, call waiting, call forwarding, etc.)

As part of Motorola's broadband family of telephony products, the SBV5121 combines voice and data on one network, in one product. By combining multiple services in one unit, consumers can enjoy an efficient solution that offers many advantages over competing technologies.

## Specifications

### Highlights, cont.

Top-mounted standby button disables the Ethernet and USB ports for increased data security

SNMP and TFTP support for remote configuration and monitoring

DOCSIS® 2.0 and PacketCable™ 1.0 certified; interoperable with DOCSIS 1.0 and 1.1 and compatible with PacketCable 1.5

Network Call Signaling (NCS) and Session Initiation Protocol (SIP) support

Configurable to meet multiple telco market standards (ETSI harmonized impedance, 600 Ohms)

Support for G.711 and other low-rate vocoders

DC powering via transformer or uninterruptible power supply

Lithium-ion battery back-up (optional)

Support for up to 16 Service IDs (SIDs) allows for future enhanced features

Automatic fax modem processing, including support for T.38 protocol

### GENERAL SPECIFICATIONS

Cable Interface	F-connector, female, 75 Ω
Network Interface	USB, Ethernet 10/100Base-T
Data Protocol	TCP/IP
Dimensions	7.91 in H x 6.27 in D x 2.62 in W (20.09 cm x 15.93 cm x 6.65 cm)
Power	4.2 W (nominal)
Input Power	
SBV5121/SBV5121E	105 to 125 VAC, 60 Hz North America; 100 to 240 VAC, 50/60 Hz outside North America
SBV5121J	90–110 VAC, 50/60 Hz
Operating temperature	0 °C to +40 °C (32 °F to +104 °F)
Storage temperature	–30 °C to +70 °C (–22 °F to +158 °F)
Operating humidity	0 to 95% R.H. (non-condensing)
Compliance	ROHS Compliant, FCC, UL Listed (US & Canada), ICES-003, CE

### DOWNSTREAM

Modulation	64 or 256 QAM
Maximum data rate*	38 Mbps (256 QAM at 5.361 Msym/s)
Bandwidth	6 MHz
Symbol rates	64 QAM 5.069 Msym/s, 256 QAM 5.361 Msym/s
Operating level range	–15 to 15 dBmV
Frequency range	88 to 860 MHz (edge to edge)
Input impedance	75 Ω (nominal)

### UPSTREAM

Modulation	8***, 16, 32***, 64***, 128*** QAM or QPSK
Maximum 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 and 2560 and 5120*** ksym/s
Operating level range	
A-TDMA	8 to 54 dBmV (32 QAM, 64 QAM), 8 to 55 dBmV (8 QAM, 16 QAM) 8 to 58 dBmV (QPSK)
S-CDMA	8 to 53 dBmV (all modulations)
Output impedance	75 Ω (nominal)
Frequency range	
SBV5121	5 to 42 MHz (edge to edge)
SBV5121E	5 to 65 MHz (edge to edge)
SBV5121J	5 to 55 MHz (edge to edge)

### TELEPHONY

Line type	2-wire
Hook state signaling	Loop start
Maximum line length (one-way)	500 ft (AWG 26/0.4 mm @ 65°C)
DTMF level	
sensitivity range	0 and –20 dBm
Speech coding	64 kbps PCM, μ-law or A-law companding; supports G.711 and other low-rate vocoders
Line termination	Configurable based on market needs
Loss plan	Receive (D/A) 4 dB; transmit (A/D) 2 dB (configurable based on market needs)
Loss plan tolerance (one-way)	±1 dB
60/50 Hz loss	>20 dB (referenced to off-hook loss at 1004 Hz)
Ringing wave form	Quasi-trapezoidal
Ringing crest factor	1.2 < CF < 1.6

\*When comparing download speeds with a traditional 28.8k analog modem. 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 service, number of connections to server, and availability of Internet router(s).

\*\*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 Cable Modem Termination System (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.

Your service provider, not Motorola, is responsible for the provision of Voice-over-IP (VoIP) telephony services through this equipment. 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 or you lose electrical power and are not using Motorola's PB1000 battery back-up.



**MOTOROLA**

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