SURFboard® SBV5322
4-Line Digital Voice Modem

IP telephony converges with high-speed cable data service in one convenient package for small- to medium-sized commercial customers.

Highlights

Plug-and-play installation

Web-based diagnostics for quick and easy troubleshooting

Up to four lines of full-featured telephone service

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

High-speed 10/100 Ethernet (RJ-45) data access

Automatic fax modem processing
Includes support for T.38 protocol

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

Intelligent Convergence

As part of Motorola's broadband family of telephony products, the SURFboard SBV5322 4-Line Digital Voice Modem intelligently converges voice and data on one network, in one unit. The SBV5322 allows MSOs to offer a competitive package of services to small home office and small- to medium-sized business customers who are currently passed by the HFC plant but are supported by an incumbent local exchange carrier (ILEC), providing them with:

• 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 phone company, including caller ID, call waiting, and call forwarding

Convenient And Reliable

The SBV5322 offers up to four lines of primary Voice-over-IP (VoIP) telephone service, as well as high-speed data access through a 10/100 Ethernet port. The integrated, field-replaceable Lithium-ion battery provides back-up power, minimizing the likelihood that a consumer will lose telephone service during a power outage.

SURFboard SBV5322
4-Line Digital Voice Modem

The SBV5322 4-Line Digital Voice Modem is simple to set up and easy to use—
just plug it in and go.

More Highlights

Integrated, field-replaceable Lithium-ion batteries, which can provide backup power during a power outage

Support for Network Call Signaling (NCS) and Session Initiation Protocol (SIP)
Field-upgradeable software

Remotely configurable and monitorable using SNMP and TFTP

Telco interfaces configurable to meet multiple market standards
ETSI harmonized impedance, 600 Ω

Support for G.711, G.720, and low-rate vocoders

Support for up to 16 Service IDs (SIDs) allows for future enhanced features
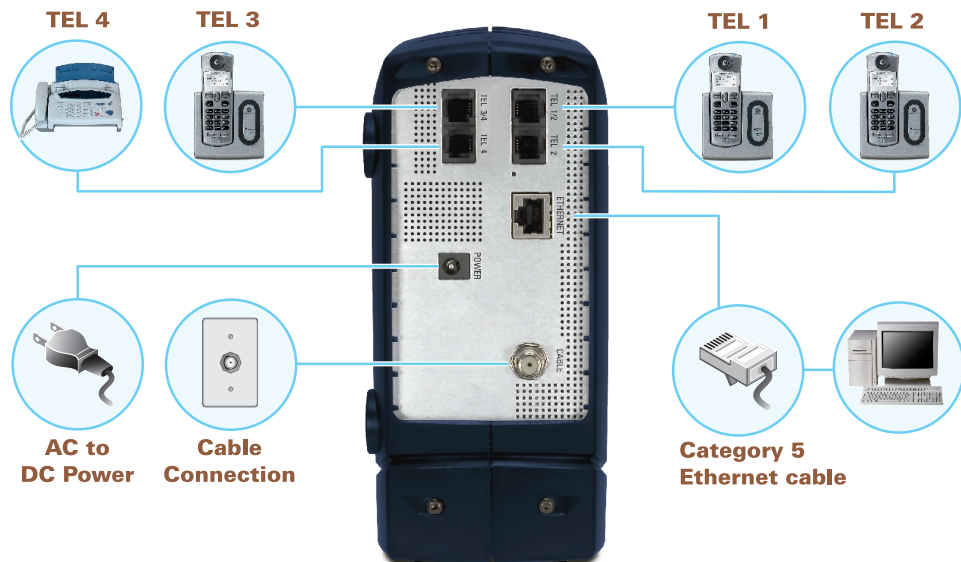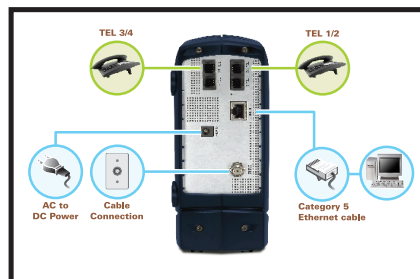
Support for GR909 test suite
Allows remotely diagnosing and troubleshooting wiring problems at the customer premises

The Features Customers Want
Motorola's SURFboard SBV5322 4-Line Digital Voice Modem offers the features small-office/home-office (SOHO) and small-business customers want:

- Ease of use and simple set-up

- 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 four lines of full-featured telephone service with support for CLASS services such as caller ID, call waiting, and three-way calling

- Reliable back-up power during power outages from integrated, field-replaceable Lithium-ion batteries

- RJ-14 ports 1 and 3 support lines 1 and 2, 3 and 4 respectively, simplifying wiring (see diagram for illustration)

SBV5322 Installation Diagram

TEL 3/4   TEL 1/2

AC to DC Power   Cable Connection   Category 5 Ethernet cable

TEL 4   TEL 3   TEL 1   TEL 2

AC to DC Power   Cable Connection   Category 5 Ethernet cable

SURFboard SBV5322
4-Line Digital Voice Modem

GENERAL SPECIFICATIONS

Cable Interface	F-connector, female, 75 Ω
Network Interface	10/100 Ethernet
Data Protocol	TCP/IP
Dimensions	20.14 cm H x 17.32 cm D x 6.89 cm W (7.93 in x 6.82 in x 3.5 in)

POWER

Power	4 W (nominal)
Input	
North America	105 to 125 VAC, 60 Hz
Elsewhere	100 to 240 VAC, 50 to 60 Hz

ENVIRONMENT

Operating Temperature	0 °C to 40 °C (32 °F to 104 °F)
Storage Temperature	Without Battery: –30 °C to 70 °C (–22 °F to 158 °F) With Battery: –10 °C to 60 °C (–14 °F to 140 °F) Store replacement batteries at 25 °C for optimal storage life
Operating Humidity	0 to 95% R.H. (non-condensing)

DOWNSTREAM

Modulation	64 or 256 QAM
Max. 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
Input Impedance	75 Ω (nominal)

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, 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	5 to 42 MHz (edge to edge)

TELEPHONY

Line Type	2-wire
Hook State Signaling	Loop start
Maximum Loop Length	1000 ft (AWG 26/0.4 mm @ 65 °C)
DTMF Level Sensitivity Range	0 to –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	±1 dB (one-way)
60/50 Hz Loss	>20 dB (referenced to off-hook loss at 1004 Hz)
Ringing Wave Form	Quasi-trapezoidal and sinusoidal
Ringing Crest Factor	1.2<CF<1.6
Ring Trip (maximum)	200 mS with 300 W termination

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

*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. Battery back-up times may vary based on many factors, including the battery age, charging state, storing conditions, and operating temperature, as well as by factors such as data activity and length of active telephone calls.

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