

SYSTEM OVERVIEW

BridgeWay Mobile systems provide rugged vehicle based or remote site voice over IP (VoIP) communications between mobile radio, SATCOM terminals, telephone systems, user headsets and VoIP networked communication terminals, such as laptops, workstations and IP telephones.

BridgeWay Mobile supports radio repeater and cross-band patching operations, while simultaneous radio and intercom calls may be placed between mobile radio, command center PBX, cell phone, IP phone and PC based operators.

The foundation of the BridgeWay Mobile product line is a vehicle based combination radio controller, telephone controller, VoIP Gateway and Operator command/control GUI server. A dual FXO and single FXS interface module plug-in is an available option.

BridgeWay supports all types of conventional and digitally controlled radios, command/control center workstation consoles and VoIP networked communication terminals. BridgeWay is compatible with third party call management servers and operator terminal GUI software using multicast techniques.

RADIO INTEROPERABILITY

BridgeWay radio ports feature transformer isolated 4-wire audio, COR inputs and relay operated PTT transmit control to interface with all radio types.

Radio base stations may be operator remote controlled via programmable RS-232 and RS-422/RS-485 radio control ports.

TELECOM PORTS

BridgeWay Mobile may be equipped with optional plug-in module with dual FXO, single FXS and PRI ISDN T1/E1 ports for integration with SATCOM terminals, cell phone controllers, PBX systems or the PSTN.

The single FXS port option includes on board loop battery and ring voltage generators for interfacing with standard telephone equipment.

BridgeWay-4M/8M



VoIP GATEWAY

A 10/100bT Ethernet connection is provided for VoIP communications. AES encryption may be applied to the VoIP data transported over the Ethernet network.

BridgeWay Mobile may be optionally equipped with an embedded H.323 or SIP Gateway supporting up to 64 VoIP terminal devices, such as IP telephones.

MC² COMMAND/CONTROL GUI

The BridgeWay MC² command and control operator console option comprises an embedded call manager and web server communicating over VoIP with a PC based JAVA client GUI. The on-board MC² software eliminates the necessity for external server and call manager equipment.

The MC² client GUI provides operator command and control over multiple radios and telephones, radio and telephone cross patching and intercom communications across a multi-location distributed IP network.

Multiple BridgeWay systems may be networked together and console operators may log in on to any terminal located on the network.

BridgeWay is compatible with third party call management servers and operator terminal GUI software using multicast techniques.

Voiceboard offers BridgeWay MC² client GUI software customized to your project requirements. Alternatively, the BridgeWay MC² client GUI source code and API may be licensed to users interested in developing customized client workstation and administrative GUI's.

TIGER DISPATCH CONSOLE GUI

As an alternative to MC², the BridgeWay "Tiger" command and control console software providing fully featured dispatch operator console positions is available. Tiger must be used with the BridgeWay tactical networked server option.

TIGER features include radio mixing/monitoring, vehicle ID, cross patching, simulcast, remote control of radio configurations, softphone with extensive speed dial, call transfer, conferencing and intercom features, voice logging, instant recall, paging, remote door control and status indicators and much more.

SIZE/WEIGHT/POWER

BridgeWay Mobile Gateways are available in 4 and 8 radio port configurations. Dual FXO/Single FXS and H.323/SIP Gateway are available options.

BridgeWay 4M/8M measures 8.875"L x 6.125"W x 1.875"H and weighs 2.25lb. The BridgeWay 4M/8M runs on 12 or 28 VDC vehicle power or AC power brick. Power draw is between 5 to 10 watts, depending upon the installed options.

FEATURES AND BENEFITS LISTING

- Programmable EIA Standard Tone signaling and E&M PTT and COR control lines provide universal interfacing with conventional and tone remote controlled radios

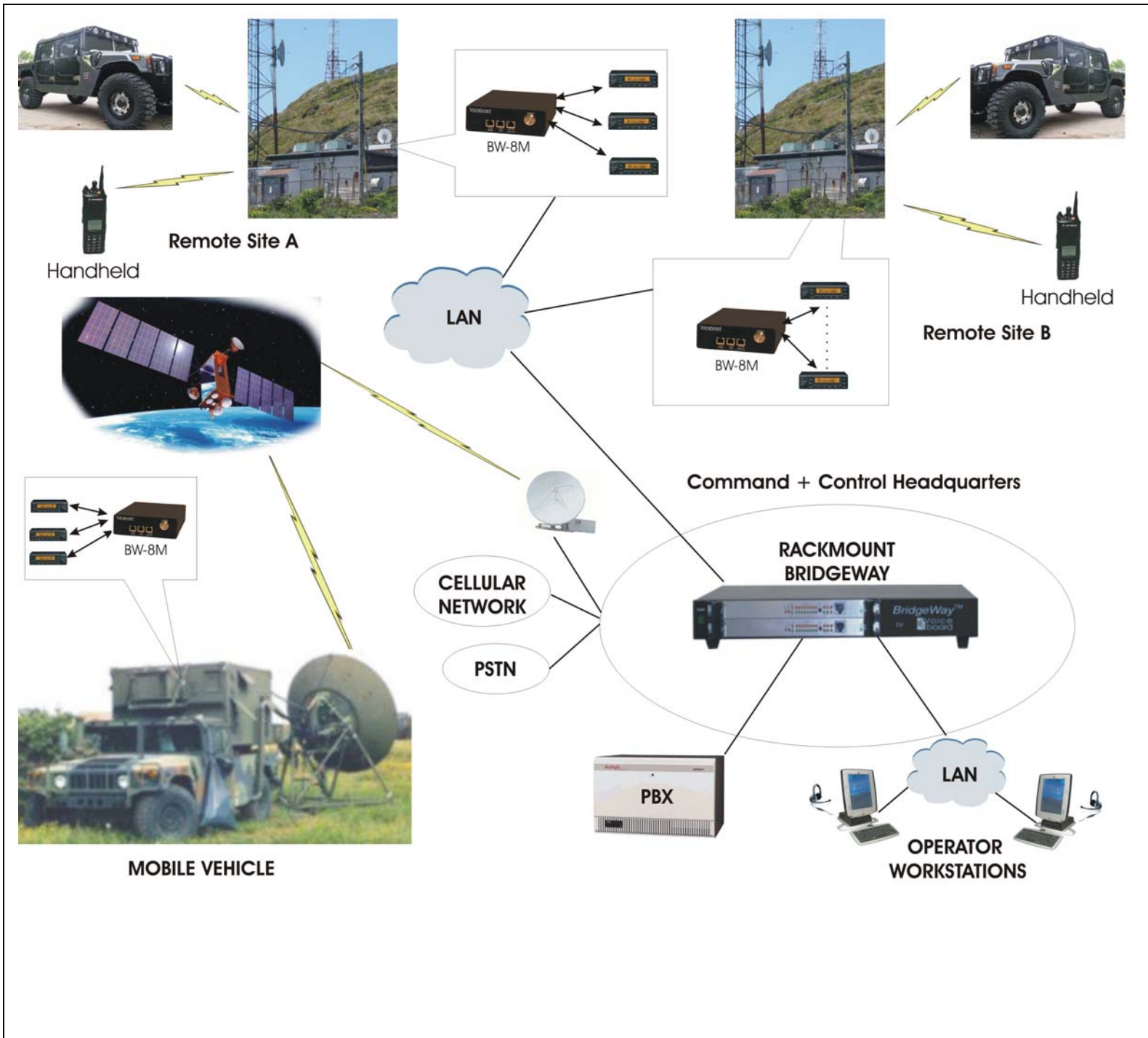
- Software programmable serial digital radio interface option adapts to all types of radios.
- Programmable digital radio features include PTT, frequency selection, squelch, caller ID capture, addressable user calling and more.
- Optional interfaces provide compatibility with Sprint Nextel and Telus (iDEN) radio networks
- VoIP SIP or H.323 Gateway option interoperates radios and conventional telephone systems with industry standard IP networked communication terminals and routers
- Seamless conferencing, repeater operation and cross-patching between multiple mobile radio users, telephone users and/or console operators
- Auto attendant feature option provides DTMF signaling, standard call progress tones and voice prompts to simplify "dial up" access to system conferencing, call routing and information services
- MC² operator command and control GUI option features foreground and background mixing of all radio channels and individual gain control on each channel, as well as simultaneous monitoring of multiple channels
- Optional FXO port networks BridgeWay with external PBX, PSTN, cell phone or SATCOM systems

OPTIONAL SIP OR H.323 VOIP GATEWAY

In addition to the MC² feature set, the BridgeWay-8M optional VoIP Gateway interfaces with VoIP communication terminals, including SIP or H.323 telephones and computer terminals supporting VoIP.

The VoIP Gateway features include:

- Standard SIP or H.323 protocol support
- All G.7xx vocoders
- Comfort noise generation and Jitter Buffering
- G.168 echo canceller, 128 msec. tail
- RTP packet streaming



BRIDGEWAY SYSTEM DIAGRAM

MC² SOFTWARE FUNCTIONALITY

The customizable MC² software GUI provides the following operator command and control console features. Refer to the MC² Operator User Guide for a complete feature description and sample screens:

- Programmable console operator GUI screens (see MC² Operator User Guide)
- System configuration and administration GUI
- Repeater and cross-patch control screen
- Softphone for telephone communications
- Console operator log in from any workstation on the network
- Multi-level password protection
- Multi party conferencing
- Multiple operator Intercom channels
- Operator programmable multi-channel radio and intercom mixing monitor
- Simulcast “one-to-many” broadcast capability
- User dial access to radios, operators and conferencing

PC HEADSET INTERFACE BOX

The Voiceboard Headset Interface Box, model HIB-01, interfaces with VoIP networked laptop or PC workstations via a USB-II port. HIB-01 accommodates military and active noise canceling headsets for improved communications intelligibility.



HIB-01 PC Headset Interface

HIB-01 FEATURES LIST

- Supports dual operator and supervisor headsets
- Left-right ear binaural audio and volume controls
- PTT operation
- Line level output for driving left-right speakers
- Line level input may be mixed with PC audio
- Telephone handset interface with auto selected channel switching
- Powered condenser and electret mic inputs
- Power for active noise cancelling headsets

BRIDGEWAY DIRECT CONNECT INTERFACE

Voiceboard offers an interface system for directly connecting headsets, microphones and external audio sources to the BridgeWay system.

The direct connect system consists of a remotely located BWHD-01 distribution box that supports up to 6 BWH-01 workstation headset interface boxes.



BWH-01 (Top) and BWHD-01 (Bottom)

BWH-01 FEATURES LIST

- Dual headsets (operator and supervisor)
- Left-right ear binaural audio
- PTT operation
- Line level input and local PC audio mixing
- Left and right volume controls
- Powered condenser and electret mic inputs
- Power for active noise cancelling headsets

BRIDGEWAY - 4/8M I/O INTERFACE SPECIFICATIONS		
Audio Signal	Designation	Specification
Line Inputs	Line In	Up to 24V pk-pk, 1V typical, balanced 10K ohm transformer isolated and transient protected inputs. 50 pin sub-min-D connector.
Line Inputs	Line Out	18V pk-pk, 600 ohm balanced transformer isolated and transient protected outputs. 50 pin sub-min D connector.
Audio Bandwidth	BW	Bandwidth 150Hz-3.4Khz, +/- 1db
Radio Control	Designation	Specification
COR Inputs	COR	Contact closure or signal logic input levels. Inputs pulled up to +5VDC through a 10k resistor. 50 pin sub-min D connector.
XMIT Control Outputs	XMIT	Normally Open relay contact closure. 50 pin sub-min D connector.
Radio Control RS232 Ports	Radio RS232 #1-4/8	9,600bps RS232 serial ports. Rx,Tx, signal ground. 50 pin sub-min D connector.
Radio Control RS485 Ports	Radio RS485 #1-4/8	9,600bps RS485 or RS422 2/4 wire serial port. 50 pin sub-min D connector.
Com Networks	Designation	Specification
10/100bT and 100b-FX Ethernets	10/100bT 100b-FX	Industry standard RJ45 10/100bT Ethernet LAN connector and Multi Mode Fiber ST 100b-FX Ethernet connector.
RS-232 "Debug" Port	RS-232	DB-9 connector 9.6K - 112K bps RS-232 serial port. Rx, Tx, signal ground.
Dual FXO port	FXO	Meets global standards for FXO operation. RJ11 connector
Single FXS port	FXS	Meets global standards for FXS operation. RJ11 connector
PRI ISDN T1/E1	T1/E1	Primary Rate ISDN T1/E1 option meets global standards for ISDN T1 and E1 operation.
Power	Designation	Specification
Power	12/28 VDC	9-36 VDC at 5-10 WATTS. Industry standard Mobile Radio Connector

GENERAL SPECIFICATIONS	
<p>DIMENSIONS AND WEIGHT:</p> <p>BridgeWay-4M/8M 8.875" (225mm) L x 6.125" (156mm) W x 1.875" (48mm) H, 2.25lb (1Kg.)</p>	<p>EMI:</p> <p>FCC part 15 class A, CSA, CIC, EN55022:1994 Class A, EN55024:1998 + A1:2001 + A2:2003</p>
<p>BRIDGEWAY- LED DISPLAYS</p> <p>Individual channel input and output active, power lamp, LAN carrier and LAN active</p>	<p>SAFETY:</p> <p>Meets UL60950-1, CSA and EN60950:2000 safety requirements</p>

ENVIRONMENTAL SPECIFICATIONS		
Specification	Parameters	Notes
Operating Temperature	-20°C to 60°C	Dissipates 5-10 W in free air.
Non-Operating Temperature	-55°C to 125°C	Storage Temperature
Operating and non-operating (storage) humidity	0 to 100% non-condensing	Non-condensing
Vibration, Sine	10 g peak 15-2k Hz	Sine vibration based on a sine sweep duration of 10 minutes per axis
Vibration, random	0.04 g ² /Hz 15-2k Hz	Random vibration 60 minutes per axis
Shock	30 g peak	Three hits in each axis, both directions, 1/2 sine and saw tooth.
Altitude	To 30,000 Feet	MIL-HDBK-5400 for Class 1A

RADIO BASE STATION CONTROL SIGNALING									
CONVENTIONAL AND TONE REMOTE CONTROL	PTT and COR interface for conventional radios and software programmable tone remote control interfacing.								
DIGITAL RADIOS CONTROL RS-232 and RS-422/485 serial port control interfaces include COTS protocols for operator control of popular military radio models.	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Manual frequency entry</td> <td style="width: 50%;">Volume</td> </tr> <tr> <td>Scan/select channel presets</td> <td>Squelch</td> </tr> <tr> <td>Mode selection</td> <td>Run BIT</td> </tr> <tr> <td>TX power level</td> <td></td> </tr> </table>	Manual frequency entry	Volume	Scan/select channel presets	Squelch	Mode selection	Run BIT	TX power level	
Manual frequency entry	Volume								
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AUTO ATTENDANT DIAL PLAN		
Call Source	Call Termination	Notes
Radio	Radio, Telephone, IP Phone	Radio may direct dial via DTMF keypad
Radio	Operator Position	DTMF keypad required on radio. Operator position(s) is assigned an address number. Radio channel audio to operator may be muted until radio calls in
Telephone	Radio	FXS, FXO or ISDN T1/E1 supported. Radio is assigned an address number
IP Phone or VoIP Workstation	Radio, operator position or phone line	SIP or H.323 Gateway option required. Radio is assigned an address number.

ORDERING INFORMATION	
<p><u>BRIDGEWAY-M SYSTEM COMPONENTS</u></p> <p>4 Port mobile BridgeWay 8 Port mobile BridgeWay Aviation style headset with PTT switch Headset Box for PC Direct Connect Headset Junction Box Direct Connect Workstation Headset Box</p>	<p style="text-align: center;"><u>MODEL</u></p> <p>BridgeWay-4M BridgeWay-8M HDSET-01 HIB-01 BWHD-01 BWH-01</p>
<p><u>BRIDGEWAY- 4/8M FEATURE OPTIONS</u></p> <p>Digital Radio Interface, xxx = radio type Dual FXO + single FXS plug-in PRI ISDN T1/E1 MC² Console GUI license, xx = seat capacity SIP Gateway H.323 Gateway</p>	<p style="text-align: center;"><u>MODEL</u></p> <p>DR-xxx POTS21 T1/E1 GUI-xxx SIP-GW H323-GW</p>