BridgeWay® Fixed Base Radio Telecom VoIP Gateway

PRODUCT OVERVIEW

The BridgeWay Fixed Base system provides SIP and H.323 voice over IP (VoIP) communications interoperability between mobile radio, SATCOM, wireless and wire line telephone, headsets and VoIP networked PC's and phones. The Fixed Base BridgeWay is designed for operations in a communications center or shelter environment.

BridgeWay supports multiple simultaneous radio repeater, cross-patch, conference and intercom network connections. BridgeWay includes a built-in switching matrix, providing IP phone, PC and PBX users with dial access to BridgeWay conference nets and connected radios.

BridgeWay's built in radio controller, VoIP Gateway, client server, communications switch and call manager provides enhanced radio and intercom communications capabilities while dramatically reducing size, weight and power requirements over previous generation technology.

The BridgeWay rack mount chassis supports a wide variety of plug in controller cards and its IP switched backplane eliminates single points of failure, resulting in reliable operation for mission critical applications.

Voiceboard offers a BridgeWay compatible line of rugged VoIP networked intercom terminals, mobile PC operator terminals, mobile BridgeWay systems, headset boxes and IP phones. The BridgeWay system is configurable via a network connected operation, administration and maintenance PC.

VoIP GATEWAY

Dual 10/100bT Ethernet LAN connections are provided for VoIP communications. BridgeWay may be optionally equipped with an embedded VoIP Gateway supporting up to 128 industry standard H.323 or SIP terminal devices, such as IP telephones, PC laptops and operator workstations.

FIXED BASE BRIDGEWAY

RADIO INTERFACE

BridgeWay supports all types of analog and digital radio base stations. BridgeWay radio ports feature transformer isolated software configured, 4-wire audio with PTT control and Carrier Operated Relay (COR) signaling. BridgeWay will also interface with tone remote signaling and IP networked radios.

REMOTE RADIO CONTROL AND DATA COMMUNICATIONS

BridgeWay may also be equipped to remotely control radio base stations and cellular phones from a PC operator console GUI. For radios equipped with a remote control feature, the BridgeWay GUI provides remote control of radio base station frequency, squelch disable, caller ID and more.

BridgeWay's remote control messaging and link layer protocols are programmable for compatibility with all radios equipped with RS-232, RS-422/RS-485 or Ethernet radio control ports.

BridgeWay may also transmit and receive data between IP networked operator terminals and RS-232, RS-422/RS-485 or Ethernet radio data ports.

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TELECOM INTEROPERABILITY

BridgeWay supports all types of analog and digitally controlled telephone equipment. BridgeWay may be equipped with optional T1/E1 ISDN span ports for integration with PBX systems, the PSTN or for connection to trunking radio and SATCOM systems.

BridgeWay line cards supporting 12 FXO and 4 FXS telephone ports, or line cards supporting 24 FXS ports, are available for interfacing telephone networks and systems to the BridgeWay VoIP network.

POWER AND ALARM OPTIONS

The 1u BridgeWay chassis is available with an auto-switching 110/220 VAC power supply. The 2u and 4u BridgeWay chassis are available with auto switching 110/220VAC, 12VDC or -48 VDC dual redundant power supplies.

The 2u and 4u BridgeWay chassis also features a system alarm module, as well as an optional backplane configuration supporting 1:1 redundant circuit cards.

FEATURES and BENEFITS LISTING

- 2/4 wire transformer isolated audio interfaces with software programmable I/O gain adapt to all radio types.
- Programmable EIA Standard Tone signaling and PTT + COR control lines provide universal compatibility with legacy and remotely located radio base station and repeater equipment.
- Software programmable remote radio control option adapts to all types of radios equipped with RS232/RS485 serial digital or IP control ports.
- Programmable radio control features include PTT, frequency selection, squelch bypass, caller ID capture and more.
- VoIP Gateway option interoperates radio and telephone systems with industry standard SIP or H.323 PC's, communication terminals, IP phones and call manager systems
- Dual redundant 10/100bT LAN ports facilitate continued operation in the event of a LAN network failure.
- Automated call routing facilitates seamless conferencing and cross-patching between multiple mobile radio users, telephone users and/or console operators
- Mobile users may dial access to system conference nets and operators via DTMF inputs
- Configurable Voice detect and IP packet detect VOX transmit control modes for universal compatibility
- MC^2 operator command and control GUI option features personalized operator screen configurations
- Optional T1/E1 ISDN, FXS and FXO ports network BridgeWay with PBX, PSTN, cellular, legacy POTS or SATCOM equipment
- Optional redundant configurations offers fault tolerant operation at the system level or the chassis level
- Auto attendant software option allows telephone and IP phone users dial access to "meet me" conferences, communication nets, operator consoles and radios.
- Operator may simulcast transmissions to all users, or a selected group of users, efficiently handling group and emergency communications.
- VoIP includes industry standard G.7xx vocoders, jitter buffering, AGC and echo cancellation
- Remote software updates to on board flash via TFTP

BRIDGEWAY SOFTWARE

BridgeWay includes Voiceboard's MC^2 embedded call manager application software. The MC^2 call manager application supports compatible BridgeWay client GUI, Voiceboard "Tiger" operator dispatch console, or third party GUI software products.

MC^2 call manager software networks multiple BridgeWay system nodes, allowing operators to access all BridgeWay connected radios or to log in via any BridgeWay networked VoIP terminal.

The embedded MC^2 call manager and web server eliminates the external server and call manager equipment typically required when using third party software GUI's or when connecting BridgeWay to external telephone systems and IP Phones.

MC^2 CLIENT GUI

The MC^2 client GUI allows operators to efficiently communicate over multiple radios and telephone lines, setup radio and telephone cross patches and communicate via intercom networks with other operators across a multi-location distributed IP network.

The MC^2 client GUI will run on any laptop, computer or workstation supporting a standard web browser and JAVA scripts.

Voiceboard offers BridgeWay MC^2 client GUI software customized to specific project requirements. Alternatively, the BridgeWay MC^2 client GUI source code and API may be licensed to users interested in developing customized client workstation and administrative GUI's.

TIGER RADIO DISPATCH SOFTWARE

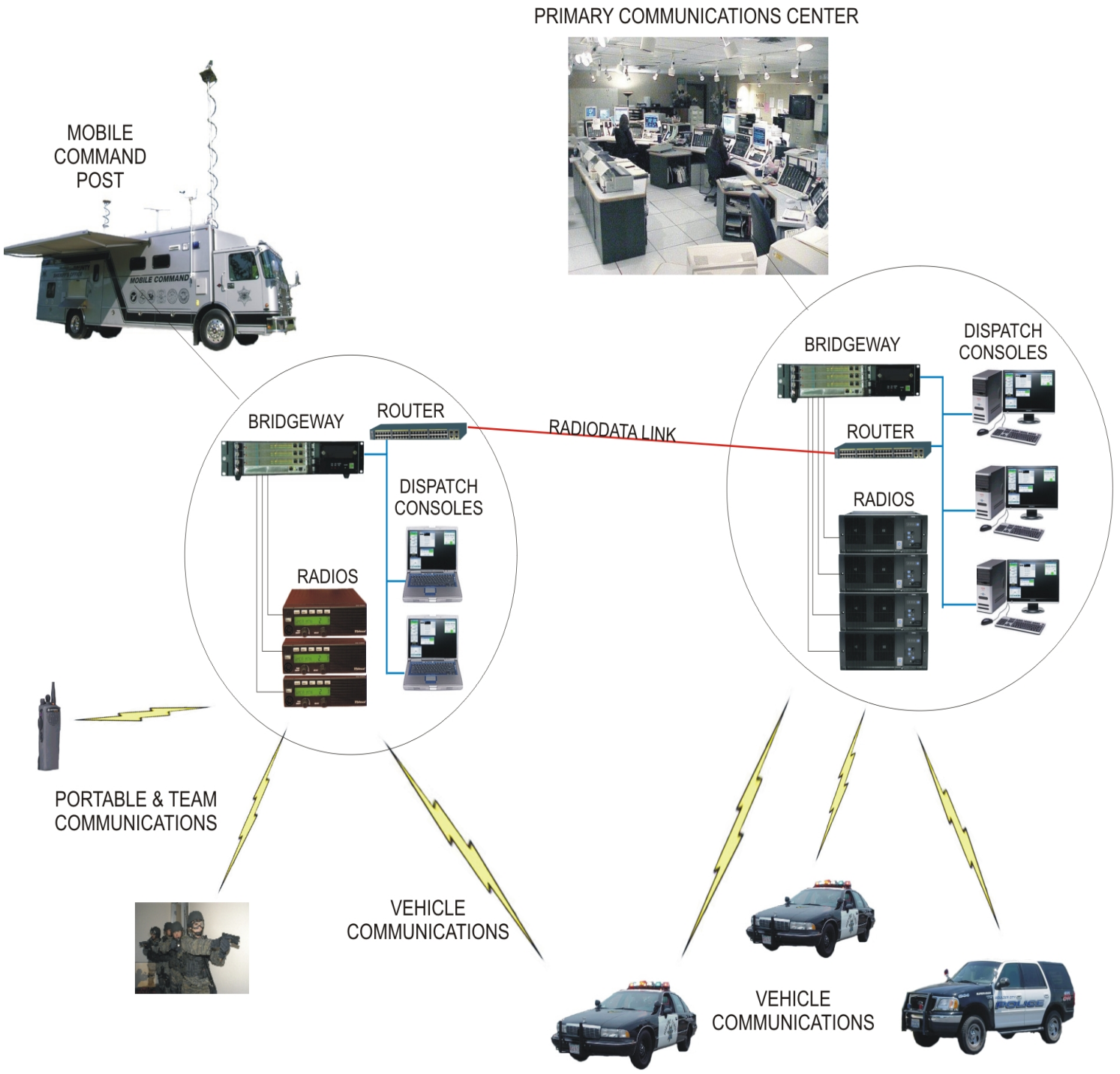
BridgeWay "Tiger" software supports fully featured radio dispatch console operations. The focus of Tiger is dedicated operator handling of radio dispatch calls and patching operations vs. the user dial access focus of the MC^2 GUI. Tiger must be used with a separate BridgeWay client server card.

. MC^2 SOFTWARE FEATURES

Features of MC^2 include:

- Secure operator log-in from any networked workstation
- Repeater and cross-patch control screen
- Softphone for telephone communications
- Multi party conferencing and multiple operator Intercom channels
- Operator programmable radio mixing monitor with foreground and background mixing and individual gain control on each channel
- Simulcast "one-to-many" broadcast capability
- Dial access to radios, operators and meet me conferencing
- Record and playback of voice prompts
- Caller ID capture and display
- User selectable call routing, cross patching and conferencing
- Caller call progress tones
- Remote radio configuration GUI
- Personalized GUI loads upon operator log-in
- Selectable L+R binaural or monaural audio
- System and user GUI configuration programming via network connected Administration PC
- SIP and H.323 Gateway
- Primary Rate ISDN signaling protocols

RADIO BASE STATION CONTROL SIGNALING	
CONVENTIONAL CONTROL	Universal interface for conventional E&M and tone remote controlled radios. Universal software programmable interface.
DIGITAL RADIOS CONTROL	RS-232, RS-422 and RS-485 serial port control interfaces. Off the shelf protocols to match the messaging format of most popular digitally controlled base station radios; contact Voiceboard for specific details.
IP RADIOS	10/100baseT Ethernet interface for VoIP and Control Interfaces. Off the shelf protocols to match the messaging format of most popular IP controlled base station radios; contact Voiceboard for specific details.



BridgeWay First Responder Network

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BCC VOIP COMMUNICATIONS CONSOLE

The BridgeWay Communications Console (BCC) is a rugged Voice over IP (VoIP) networked radio, telephone and intercom communications console designed for operation in mobile vehicle and shelter environments.

The BCC console may be equipped with an intuitive LCD touch screen Graphical User Interface (GUI) or with a cursor driven interface suitable for use with gloved hands. Both interface options are designed for managing operator communications with multiple radio, telephone and intercom users located anywhere on the BridgeWay VoIP network.

The BCC operator may also conference or patch radio and telephone users, make Public Address announcements and simultaneously broadcast to multiple radios and user terminals over the IP network.

BCC consoles include a “softphone” that interoperates with industry standard SIP or H.323 computers, IP phones and IP network equipment.

The BCC user interface is software programmable, including 5 function keys, softphone features and GUI graphics. The BCC programmable function keys allow the operator to select a desired radio or intercom channel via a single push button key.

The BCC console supports a variety of headset, microphone and speaker interfaces with “hot mic” or PTT operation. The BCC is available in desktop or panel mount configurations and includes a built-in speaker and microphone. A companion headset jack box provides a convenient interface to the desktop BCC console for a wide variety of headset types.

The BCC console GUI configuration and user access privileges may be programmed remotely over the IP network by the System Administrator. Personalized GUI screens and access rights to specific conference nets, intercoms or radios are loaded to each BCC upon operator log-in.

Pre-configured incident-specific GUI screens, function keys and user access privileges may be downloaded into each BCC over the IP network.

BCC-1 CONSOLE

BCC FEATURES LISTING

- Programmable GUI screens button and keys
- Selectable left-right binaural or monaural audio
- Multiple operator intercom channels
- SIP/H.323 interoperable “softphone”
- Push to talk (PTT) or “hot mic” operation
- Multi party “meet me” conferencing
- Radio and telephone call “patching”
- Simulcast “one-to-many” broadcast capability
- Power for ANR headsets and electret or condenser microphones
- Companion dual headset jack box
- Remote configuration and administration
- Personalized operator GUI screen configuration
- Low power 9-36 VDC vehicle power or AC operation
- LCD display brightness control
- Internal microphone and speaker
- Water resistant IP65 (water stream) protection standards

GENERAL SPECIFICATIONS

1U DIMENSIONS AND WEIGHT:	2U DIMENSIONS AND WEIGHT:
Width: 17.3 in (440 mm) Depth: 11.0 in (280 mm) Height: 1.75 in (44.5 mm) Weight: 9.9 lbs. (4.5Kg.) 19" Rack mount IEEE 1101.10/.11	Width: 17.3 in (440 mm) Depth: 11.6 in (295 mm Height: 3.50 in (89 mm) Weight: 14.9 lbs. (7Kg.) 19" Rack mount IEEE 1101.10/.11
ENVIRONMENT	**EMI:**
Operating temperature: 0° to +55°C Storage temperature: -50° to +125°C Relative Humidity: 0 to 95%, non-condensing.	FCC part 15 class A, CSA, CIC, EN55022: 1994 Class A, EN55024: 1998 + A1:2001 + A2:2003
LED DISPLAYS	**RELIABILITY AND SAFETY:**
Individual channel input and output active, power lamp, LAN carrier and LAN active	100,000 Hours MTBF and 99.999% Availability UL60950-1, CSA and EN60950: 2000 safety

ORDERING INFORMATION

1U CHASSIS CONFIGURATIONS	MODEL
12 Channel 1u BridgeWay 110/220VAC, 50W	BridgeWay-112AC
2U CHASSIS CONFIGURATIONS	**MODEL**
12 Channel 2u BridgeWay with dual 110/220VAC power supplies, 100W	BridgeWay-212AC
12 Channel 2u BridgeWay with dual DC power supplies, 100W	BridgeWay-212DCxx, where xx = 12 (12VDC power) or xx = 48 (-48VDC power)
COMMON OPTIONS	**MODEL**
12 channel radio gateway card	RGW-12
Serial Radio Interface, xxx = radio type code	SDR - xxx
T1/E1 ISDN port	T1/E1
12/4 FXO/FXS POTS combo card	CFXO3120/4
24 port FXS POTS card	CFXS3240
VoIP SIP Gateway	SIPGW
VoIP H.323 Gateway	H.323GW
MC^2 Console GUI license, xx = seat capacity	MC^2GUI - xxx

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BRIDGEWAY I/O INTERFACE SPECIFICATIONS		
AUDIO SIGNAL	**AUDIO SIGNAL**	**AUDIO SIGNAL**
Line Inputs	Line In	Up to 24V pk-pk, 1V typical, balanced 600ohm transformer isolated and transient protected inputs. DB-50 connector.
Line Outputs	Line Out	0-18V pk-pk, 600 Ohm balanced transformer isolated and transient protected outputs. DB-50 connector.
Audio Bandwidth	BW	Bandwidth 150Hz-3.4Khz, +/- 1db
RADIO CONTROL	**RADIO CONTROL**	**RADIO CONTROL**
COR Inputs	COR	Contact closure or signal logic input levels. 51K input pull-up to 12V. Input, active low at voltages < 9.5V. DB-50 connector.
XMIT Control Outputs	XMIT	Normally Open relay contact closure. DB-50 connector.
Radio Control RS232 Ports	Radio RS232 #1-8	9,600bps RS232 serial ports. Tx, Tx, signal ground. DB-50 connector.
Radio Control RS485 Ports	Radio RS485 #1-8	9,600bps RS485 or RS422 2/4 wire serial port. DB-50 connector.
COM NETWORKS	**COM NETWORKS**	**COM NETWORKS**
10/100bT Ethernets	10/100bT	IEEE STD 802-3 10/100bT Ethernet LAN. RJ-45 connector
RS-232 “Tech” Port	RS-232	9.6K – 112K bps RS-232 serial port. Rx, Tx, signal ground. DB-9 connector.
T1/E1 ISDN port	T1/E1	Primary Rate ISDN T1/E1 option. Meets global standards for ISDN
FXS Ports	FXS	Meets global standards for FXS operation
FXO Ports	FXO	Meets global standards for FXO operation

Specifications subject to change without notice

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