

*Affordable solution to interoperability
without sacrificing features.*

TCB-1

The Tactical

Communications Bridge 1

performs as the connection point between two radio systems. The TCB-1 incorporates many features including simplex and duplex repeater operation, different protocol radio interoperability, radio link extender and cross-band repeater operation. The ideal interface between Analog and Digital trunked radio systems.

If your requirement is for a remote, rapid deployment repeater, either simplex or duplex, the TCB-1 will meet your needs. With its 2 minute built-in voice recorder on each of the two radio ports, the TCB-1 can provide an audio store and forward system for simplex operation, and a duplex repeater mode for duplex repeater operation.

When operating the TCB-1, a local speaker and microphone port is available for local operation, without compromising the number of available radio ports. Housed with a 10 watt, 4" speaker, the TCB-1 provides plenty of audio for use in a noisy environment. The microphone port accepts RJ-45 formatted microphones. The user can also configure what radio ports the speaker / microphone audio is routed.

Adjuster Knob: Accesses the set-up and configuration menu's. Serves as the up and down selection control along with the <Enter> key. Rotate the knob left or right to select features, and press the knob to <Enter> the selection.

LCD Backlight Digital Display

Volume Control Knob

Ext Speaker Port

Microphone Port

Mode A/B Switch: Control the connection between the two radio ports with a flick of a switch. Switch also available remotely utilizing a six digit DTMF sequence. Utilizing a DTMF pad, the user can connect or disconnect the two radio ports with this built-in feature.



Rec 1 LED

Rec 2 LED

PTT2 LED

DTMF LED

Run LED

PTT1 LED

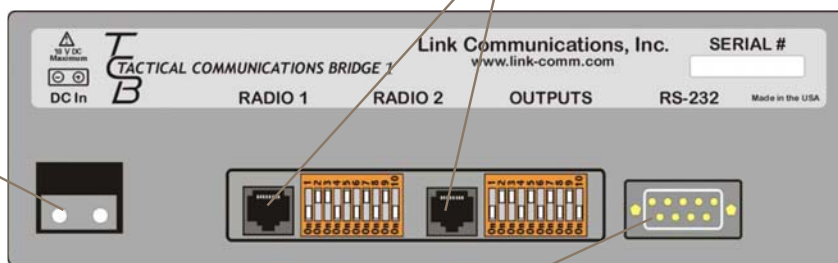
TCB-1 Features

- ▶ Powerful DSP based digital audio interface
- ▶ Adjustable VOX detector.
- ▶ Non-VOX based COR inputs
- ▶ Supports Analog/Digital radios
- ▶ Support for several cellular and PTT style mobile phones
- ▶ Digital Audio Delay minimizes Trunking receiver clipping
- ▶ Speaker/ microphone for dispatch operator
- ▶ Front panel / DTMF control to select two modes of operation
- ▶ Large assortment of radio interface cables available for both handheld/mobile radios
- ▶ Windows™ based software for remote control operation
- ▶ Supports two radio ports and operates from 12VDC (AC Adapter Included)
- ▶ Affordable Price

TCB-1 Rear Connections needed for radio, outputs and computer communication.

Radio 1 and Radio 2:

These connections are what you use to interface your radios to the TCB-1.



DC In Port:

2 pin Phoenix Power Connector. Power input must be +11V..+18V DC. Current requirements, 1 Amp DC power cube (Included). TCB-1, with LCD backlight on draws ~3500mA current at +12V DC input.

RS-232 Port: The RS-232 port is used to upload software updates for the TCB-1.

You can also download the data flash memory contents. The data flash stores all the unique setup information for the TCB-1 and can be uploaded to other TCB-1's for cloning purposes. It is also a good idea to download the data flash for a backup incase of problems. For more information on the data flash download and upload, refer to the Data Flash Procedure Applications Note available from the TCB's web site.

TCB-1 SPECIFICATIONS

POWER & TEMP

Voltage 11V .. 18V DC / 350mA DC @ +12V/DC.
Current 2 pin Phoenix Power Connector
Temp -4° F to 158° F (-20° C to 70° C)

SIZE

Length 5.2 inches (132.1 mm)
Width 8.375 inches (212.7 mm)
Depth 2.625 inches (66.7 mm)
Weight 2.75 pounds (1.2 kg)

RADIOS

Ports 2 radio ports, RJ-45 conn (Balanced Input / Output).

AUDIO CHARACTERISTICS

INPUT

Level 150mV p-p .. 8V p-p, 96dB (16 bit digital conversion ADC)
Range > 50K ohms, AC Coupled
Response 2Hz - 3.5 KHz (-3dB point)

OUTPUT

Level 0V p-p .. 4.30V p-p, 96dB (16 bit ADC)
Range 600 ohms, AC Coupled
Response 15Hz - 3.5 KHz (-3dB Point), (600 Ohm Load)

Digital Voice Storage 4 min. total per radio port, 2 min. for Simplex Repeater function
Local Speaker 4", 6 watts nominal, 10 watts max, 1/8" mono external speaker jack
Microphone RJ-45 microphone (HMN-3596a or equiv)

I/O CHARACTERISTICS

COR & CTCSS Inputs 0V - 30V, (12 bit digital converted ADC), Programmable Pull-up/ Pull-down load, 55K Ohm input load

Access Modes VOX (Activates on audio), COR, CTCSS, COR & CTCSS, COR or CTCSS
PTT Output 0V - 40V, 100mA maximum current (DB-9), 0V - 200V, 2 Amp

DIGITAL CHARACTERISTICS

DSP Processor 40 MIPS Motorola DSP w/ field software upgrades.
Firmware Program & Data storage Flash memory based.
Audio CODEC 16 Bit @ 8 KHz sample rate, 4 KHz in/output bandwidth. LCD 16 character x 2 line. LCD Backlight control either ON, OFF or User Adjustable Timer.
RS-232 Port 300 baud - 115 K baud selectable. GUI remote control interface software from the RS-232 port or Telnet.

OPTIONS AVAILABLE

Radio Cables Most handheld / mobile radios are supported & more added weekly. Custom cables available for most radios listed in radio database. Contact us for pricing & availability cables & radios not listed.

E&M Type 3 Interface TCB-1 supports several E&M interfaces which enable TCB to connect to external VoIP router equipment (Cisco routers).

Mobile Operations Case Shock mount case available. Holds TCB-1 & two mobile radios. It's constructed of ABS plastic & has both front & rear removable covers.

19" Rack Mount Ears Available for perm rack mounting.

OPERATING MODES

Conventional Half duplex transceiver. Receiver audio ignored when transmitter is active. Fixed audio delay available.
Trunked Same as conventional except adaptive digital audio delay & channel available tone on PTT enabled.
Duplex Radio Same as conventional except receiver audio & transmit audio paths both enabled. Duplex Repeater Receiver activity causes a PTT condition on the same port as the receiver. Ideal for analog repeater ops. Simplex Repeater Receiver audio is recorded, up to 2 min. When receiver unkeys recorded audio is played back.

AUDIO DELAY DESCRIPTION

Fixed The receiver audio, digitally delayed up to 3.0 sec. Used when trunked system radio does not generate a "Channel Available" tone.
Adaptive Digital When port is configured as trunked port, TCB-1 configures digital audio delay into adaptive audio delay, allowing delayed audio to be varied based on info received back from trunked radio during transmit. Configure trunked radio to generate "Channel Available" tone while in transmit. TCB-1 delays audio as long as tone present. When tone stops, TCB-1 begins playing back delayed audio. Ensures no audio info's lost during trunking channel acquisition time.

DATABASE DESCRIPTION

Radio Database Database set-up info for up to 50 radio types. Select radio type connected to each radio port. Once selected, receiver and transmitter setting automatically recalled for the selected radio. No adjustments needed. Tech can edit radio's settings to exactly match the connected radio. If radio isn't found in radio database, tech can develop own profiles using the radio set-up utility.