



TACTICAL COMMUNICATIONS BRIDGE

www.tcb2.net

TCB-2

- **Powerful DSP based digital audio interface**
- **LCD Touch - Screen allows field configuration, port monitoring and radio adjustment control**
- **Adjustable VOX detector. Non-VOX based COR inputs**
- **Supports Analog, Digital and cellular radios**
- **Modular design with support for up to 10 radios allows custom configuration and quick field servicing**
- **Support for several cellular and PTT style mobile phones**
- **Digital Audio Delay minimizes Trunking receiver clipping**
- **Front panel / DTMF control to change operational modes**
- **Dual Telephone module supports Pots/2/4 wire interface (option)**
- **Speaker / microphone for local dispatch operator (option)**
- **Large assortment of radio interface cables available for both handheld/mobile radios**
- **Windows(tm) based software for remote control operation**
- **Operates from +12VDC (AC Adapter Included)**
- **Affordable Price: < \$5K**



The Tactical Communications Bridge 2 (TCB-2) performs as the connection point between two radio systems. Acting as the mode independent connection device, the TCB-2 offers interoperability for up to 10 radios, at an affordable price without sacrificing features.

The TCB-2 incorporates many features including simplex and duplex repeater operation, different protocol radio interoperability, radio link extender and cross-band repeater operation. The TCB-2 is an ideal interface between Analog and Digital trunked radio systems. Operators utilizing iDen PTT phones can easily connect the phone with other conventional or trunking radio systems utilizing the available radio interface cables.

Radio interfacing is accomplished using the built-in radio settings database along with one of the custom radio interface cables. The TCB-2's radio database contains all the settings needed for the selected radio to operate correctly with pre-defined audio level settings. This ensures that the connected radios audio is correct and interfaced at the correct level.

Interfacing to a trunked radio system is accomplished by selecting the appropriate radio from the radio database. Within the radios profile is the mode of operation for the radio. When a trunked radio is selected, the TCB-2 enables the adaptive digital audio delay feature. The delay minimizes the receiver clipping that can occur when connecting to a trunked system. The TCB-2 has a total of 5 seconds of digital audio delay capacity, per radio port, available during trunked radio operation. If the connected radio generates

“Channel Available tones”, the TCB-2 will recognize the tone, and will automatically adjust the length of the digital audio delay. This operation minimizes the length of the audio delay which in turn maximizes the ease of operation.

Utilizing the optional color LCD touch panel display, the users can monitor a ports activity, input data and parameters without the need for a computer. The graphical display will aid in the operation and configuration of the TCB-2.

When operating the TCB-2 with the optional Consol interface, a local speaker and microphone port is available. The operator can then use the LCD touch screen for typical consol operation. There is no need to have additional pieces of equipment when using the local consol position. A 3 watt speaker system, along with a headphone jack will provide plenty of audio for use in a noisy environment. The microphone port accepts RJ-45 formatted microphones.

The user can remotely control the connection nets utilizing their radios DTMF keypad. Local control of the TCB-2 is accomplished with an external computer or utilizing the optional touch panel display.

For more information on the TCB-2, currently supported radios, options, documentation and pricing contact your nearest authorized dealer.



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TCB-2 Specifications

Power and Size	
Voltage / Current / Temperature	11V .. 18V DC / 1200mA DC @ +12V/DC. 2 pin Phoenix Power Connector. -4 ° F to 158° F (-20 ° C to 70 ° C).
Size/Weight	9.0" deep x 8.750" width x 5.250" high, Weight with carrying handle 8.0 Lbs (3.83kg).
Included Radio Ports	6 radio ports, RJ-45 connector (Balanced Input / Output, COR, CTCSS and VOX). Opto-Isolated COR / CTCSS inputs.
Audio Characteristics	
Input Level / Range / Response	150mV p-p .. 8V p-p , 96dB (16 bit digital conversion ADC). > 50K ohms, AC Coupled, 2Hz - 3.5 KHz (-3dB point).
Output Level / Range / Response	0V p-p .. 4.30V p-p, 96dB (16 bit ADC). 600 ohms, AC Coupled. 15Hz - 3.5 KHz (-3dB Point), (600 Ohm Load).
Digital Voice Storage	3 minutes total per radio port, 2 minutes for Simplex Repeater function.
Local Speaker / Microphone (option)	2"x4", 10 watts nominal, 15 watts max, 1/4" stereo headphone jack. RJ-45 microphone (HMN-3596a or equivalent).
I / O Characteristics	
COR and CTCSS Inputs	0V - 48V, Optical Isolated with a 4.7K ohm load. Programmable active high/low condition.
Access Modes	VOX (Activates on audio), COR, CTCSS, COR and CTCSS, COR or CTCSS.
PTT Output	0V - 200V, 2 Amp, Relay Isolated w/mechanical contact (RJ-45).
Optional I/O boards	Contact Link Communications, Inc for you analog/digital I/O requirements
Digital Characteristics	
DSP Processor / Firmware	100 MIPS floating point Analog Devices DSP radio card processor. 66 MIPS Motorola system control uProcessor.
Audio CODEC	16 Bit @ 16 KHz sample rate, 8 KHz input/output bandwidth.
LCD (Optional)	320 x 240 Color TFT Graphical LCD w/integrated Touch Screen. LCD Backlight either ON, OFF or User Adjustable Timer.
RS-232, Ethernet and USB Port	RS-232 port up to 115 K baud. 10/100 Ethernet port. 1.2M/12M USB slave port. Windows(tm) GUI included.
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 and channel available tone on PTT enabled.
Duplex Radio	Same as conventional except receiver audio and 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 minutes. When receiver unkeys recorded audio is played back.
Audio Delay Description	
Fixed Audio Delay	The receiver audio is digitally delayed up to 5.0 seconds. Used when trunked system radio does not generate a "Channel Available" tone.
Adaptive Digital Audio Delay	When a port is configured as a trunked port, the TCB-2 configures its digital audio delay into an adaptive audio delay. This allows the delayed audio to be varied based on the information received back from the trunked radio during transmit. For best operation, configure the trunked radio to generate the "Channel Available" tone while in transmit. The TCB-2 will then delay the audio as long as the tone is present. When the tone goes away, the TCB-2 will begin playing back the delayed audio. This ensures that no audio information is lost during the trunking channel acquisition time.
Database Description	
Radio Database	The TCB-2 contains a radio database that has the set-up information for up to 50 radio types. The user can simply select the type of radio connected to each radio port. Once selected, the receiver and transmitter setting will be automatically recalled for the selected radio. No adjustments should be needed when setting up a radio. The radio technician can also edit the radio's settings to exactly match the connected radio. If a radio is not found in the radio database, the radio technician can develop their own profiles using the radio set-up utility.
Options Available	
Radio Cables	Most handheld / mobile radios are supported and more are added weekly. Custom cables are available for most radios that are listed in radio database. Contact Link Communications for pricing and availability cables and radios not listed.
Additional Radio Port Cards	The TCB-2 supports 10 radio interfaces. It comes with three interface cards, two ports/card. Additional Cards Available.
Telephone Interface (TIM)	The TCB-2 TIM supports two analog telephone lines. Features on the telephone are similar to the radio ports.
E&M Type Interfaces	The TCB-2 supports several E&M interfaces utilizing special interface cables. Contact Link for more information.
Mobile operations case	A mobile operations, shock mount case is available for the TCB-2. The case will hold a TCB-2 and six mobile radios. It is constructed of ABS plastic and has both front and rear removable covers along with caster wheels for mobility.