eMDee Technology, Inc.

User's Manual

**USB
Simulated VRCU
Communications Interface Box**

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1.   OVERVIEW

The Simulated VRCU Interface Box is a USB peripheral that provides audio and digital I/O interfaces for simulation of a tactical SINCGARS radio system.

The box provides interface through a standard USB 2.0 interface for I/O (switches, buttons, etc.) and audio input and output. By itself, the device is simply an interface box and will require special software to allow the box to function properly. A description of the software is provided in accompanying user's manuals.

The device takes its +5VDC power from the USB bus and can be operated with only the USB cable connected.

2.   EXTERNAL CONNECTORS

Figures 2.1 and 2.2 show the locations of the external connections to the interface box:
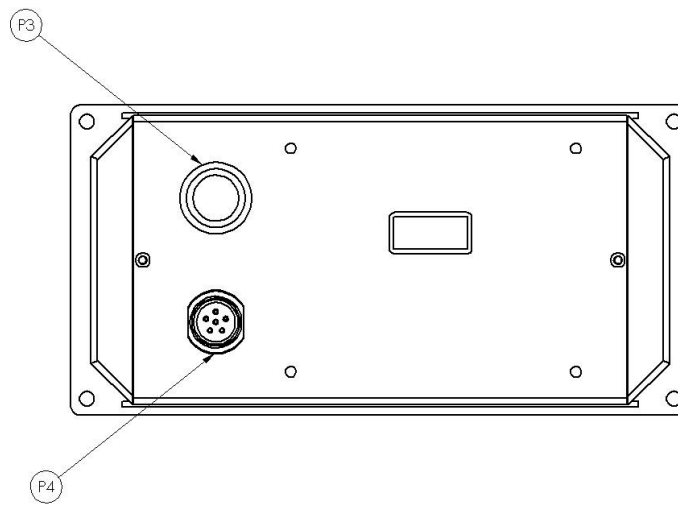
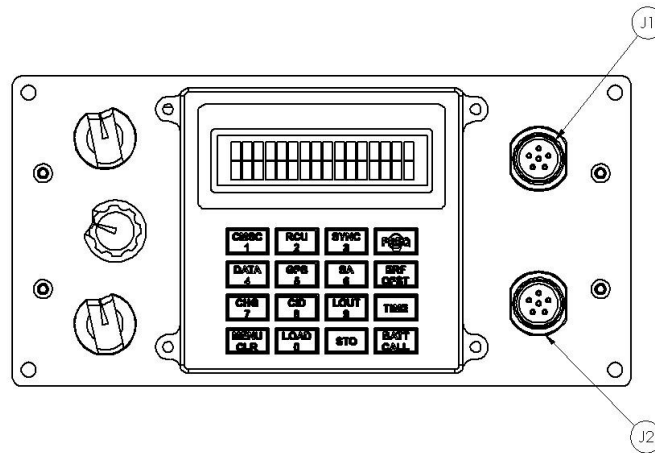*Figure 2.1: Simulated VRCU Rear External Connectors*

Figure 2.2: VRCU Front External Connectors

2.1 J1 and J2 – Headset

The front panel headset connectors on the VRCU are inactive and not connected internally. Audio signals are interfaced through P4 located on the back of the interface box.

2.2 P3 – USB

The USB connector is a mini USB B-Type connector with a locking shroud. A standard mini Type-B USB cable can be used without a locking shroud, but it is recommended to use a cable with a locking shroud. The following cables are compatible:

Length	eMDee Part Number	Bulgin Part Number
2 meters	10957	PX0441/2M00
3 meters	10765	PX0441/3M00
4.5 meters	10534	PX0441/4M50

2.3   P4 – Audio Interface

P4 is a standard U-283/U connector with a modified pin-out for use with a specialized stereo CVC helmet. The pin-out for the connector is:

PIN	SIGNAL
A	Common
B	Headphone Audio Right
C	PTT
D	Mic Signal
E	Mic Common
F	Headphone Audio Left

Standard tactical headsets should not be connected directly to this connector. Use only headsets with non-powered microphones with this device.

3.   DIP Sᴡɪᴛᴄʜ Sᴇᴛᴛɪɴɢs

The DIP switch on the back of the interface box is used to configure the USB interface board and internal microphone bias. The table below details the function of each of the DIP switches:

Switch #	Function
1 2 3 4	The combination of these four switches creates a binary equivalent for the identifier of the interface box. Switch 1 is the MSB and switch 4 is the LSB
5	Not Used
6	Not Used
7	Activate Internal Microphone Bias for left channel (not available on this device)
8	Activate Internal Microphone Bias for right channel (not available on this device)

3.1   USB Device Identifier

More than one interface box can be used in system simultaneously. When using more than one of the same type of USB interface board, the software will need to know the difference between the boards. This is accomplished using the first 4 switches on the DIP switch that is accessible on the back of the interface box. The software driver that is loaded will reflect the identifier that is configured with these switches. Here are two examples:

Example 1: The first 4 switches on the DIP switch are set to OFF. This corresponds to an identifier of zero. Therefore, the driver that is loaded for this device will labeled "eMDee USB Composite Device 0".

Example 2: The first 4 switches on the DIP switch are set to OFF, OFF, ON, ON (as seen from left to right). This corresponds to an identifier of three. Therefore, the driver that is loaded for this device will labeled "eMDee USB Composite Device 3".