

The logo for eMDee Technology, Inc. features the company name in a green, stylized font. The 'e' is lowercase and cursive, while 'MDee' is in a bold, sans-serif font. To the right of the name, 'Technology, Inc.' is written in a smaller, bold, sans-serif font. The logo is set against a green grid background that tapers to the right.

eMDee Technology, Inc.

Technical Reference Manual

for

Simulated Device, FFCS-L, VIC-3, Medium Fidelity

Part Number: **10494**
Revision: -
Date: **05AUG10**

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1. INTRODUCTION

The Simulated FFCS-L is a USB computer peripheral designed to support training and simulation of a tactical VIC-3/L communications system. In the tactical system, the FFCS-L is the operator's connection point and control box for all intercom and radio communications. Likewise, the Simulated FFCS-L provides the same functions in a simulated environment.

1.1 Functional Overview

The basic design of the Simulated FFCS-L is a USB 2.0 peripheral with audio amplifiers that are compatible with tactical headsets and handsets. The USB portion of the device interfaces to the control knobs and switches on the front panel of the device. More than one Simulated FFCS-L and other simulated components can be connected to the same PC. The PC runs a software application that communicates with all of the simulated devices and models the behavior of the VIC-3/L system accordingly – routing voices from operator to operator and interfacing to external networked voice streams, etc.

The following block diagram outlines the basic functionality of the Simulated FFCS-L device:

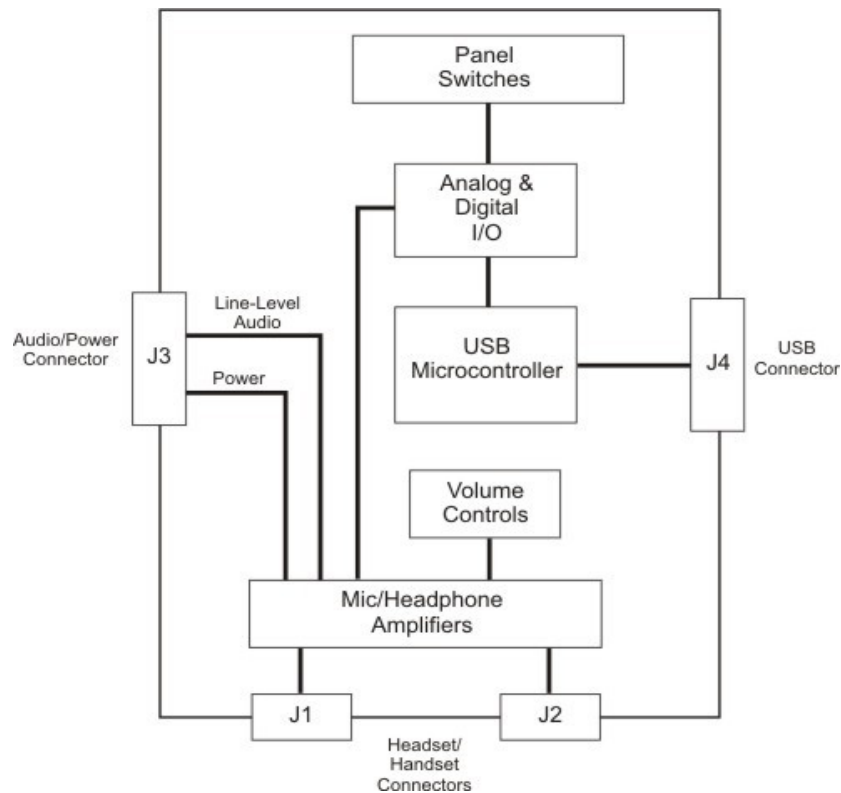


Figure 1.1: Simulated FFCS-L Conceptual Block Diagram

2. PHYSICAL DESCRIPTION

2.1 Envelope Dimensions

The drawing below shows the overall dimensions of the Simulated FFCS-L:

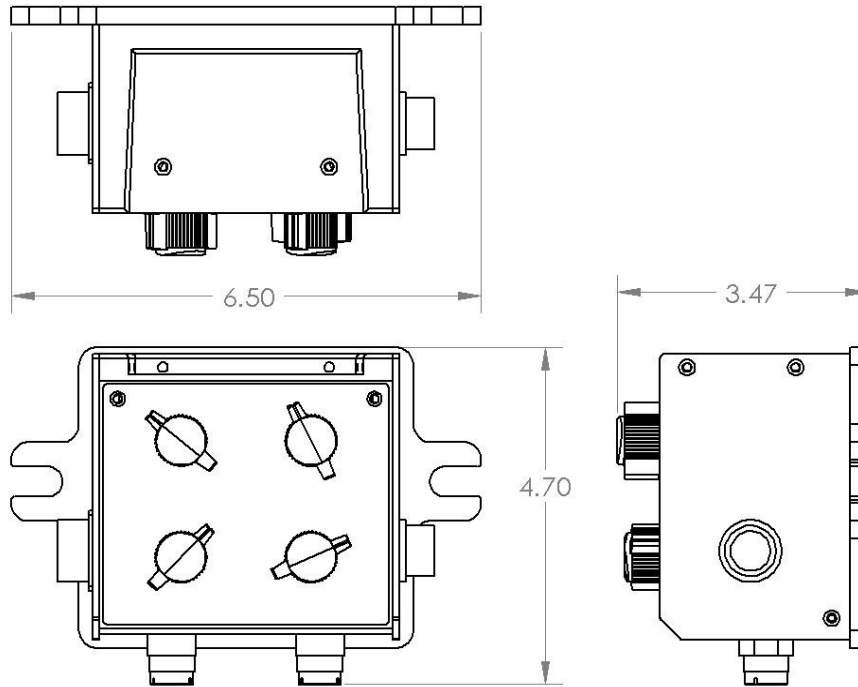


Figure 2.1: Physical Dimensions

2.2 Mounting Holes

The drawing below shows the rear view of the Simulated FFCS-L and dimensions for mounting hole locations:

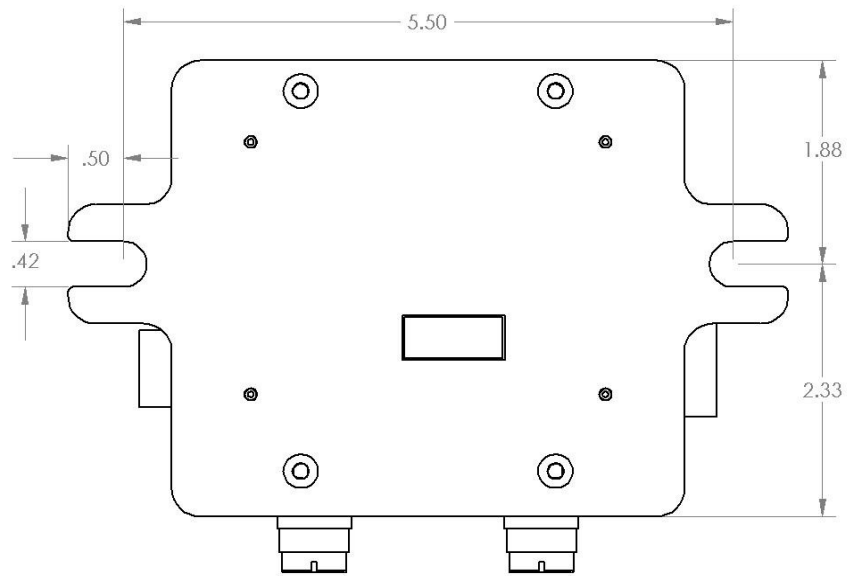


Figure 2.2: Mounting Configuration (Rear View)

3. EXTERNAL CONNECTORS

The figure below shows the locations of the external connectors:

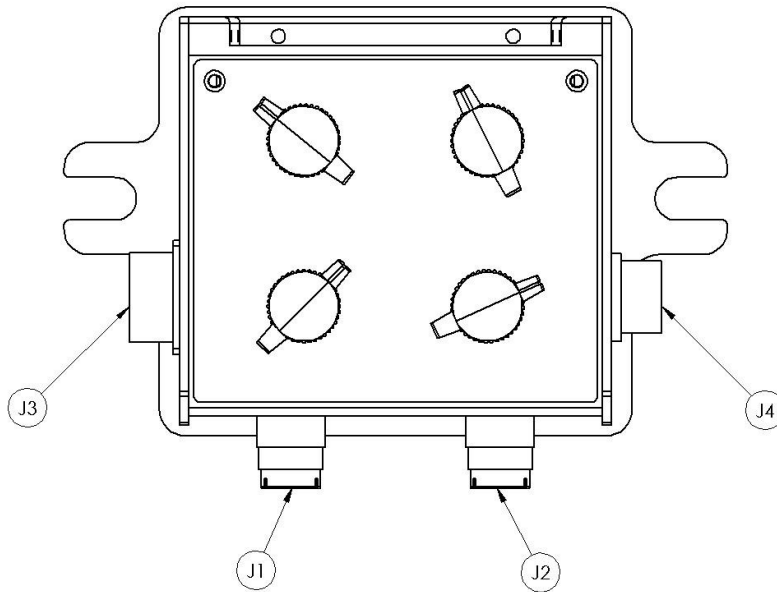


Figure 3.1: External Connectors (Front View)

3.1 Headset/Handset Connectors (J1 & J2)

J1 and J2 are U-283/U connectors and are compatible with a variety of tactical headsets and handsets. The following headsets/handsets have been tested with the simulated FFCS-L:

- Bose Tri-Port Tactical Headset
- H-250 Handset

The pinouts of J1 and J2 are listed in the table below:

| Pin | Signal |
|-----|----------------|
| A | GND |
| B | Headphone (+) |
| C | PTT |
| D | Microphone (+) |
| E | Microphone (-) |
| F | DC Power |

The H-250 handset will connect directly to J1 and J2. Most other CVCs and tactical headsets will require the use of a “bailout cable” to connect the headset directly to the Simulated FFCS-L. The Army part number for a standard bailout cable is A3206020 (eMDee Technology PN: 10261).

3.2 Audio/Power Connector (J3)

The audio/power connector (J3) on the Simulated FFCS-L is a specialized connector that interfaces to the unit's line-level audio signals and provides power for the headset interface. J3 is a 19-pin circular locking connector with sockets (Amphenol part no: PT02A14-19S).

- Mating connector for J3: Amphenol part no: PT06E14-19P

The pinout for J3 is listed in the table below:

| Pin | Signal |
|-----|-----------------------|
| B | J1 Microphone (+) |
| A | J1 Microphone (-) |
| M | J1 Microphone Shield |
| C | J2 Microphone (+) |
| P | J2 Microphone (-) |
| N | J2 Microphone Shield |
| D | J1 Headphone (+) |
| R | J1 Headphone (-) |
| V | J1 Headphone Shield |
| E | J2 Headphone (+) |
| S | J2 Headphone (-) |
| T | J2 Headphone Shield |
| G | DC Power (15 - 30VDC) |
| F | Power Common |
| H | N/C |
| J | N/C |
| K | N/C |
| L | N/C |
| U | N/C |

The microphone signals from J3 are amplified to line-level and the headphone signals to J3 should also be line-level. They are designed for connection to a Layla3G multi-channel audio interface. eMDee Technology provides a cable that connects directly from J3 to the Layla3G interface box. The recommended cable for this application is:

- eMDee PN 10533: Cable, Audio and Power, FFCS-L

3.3 USB Connector (J4)

The USB connector on the Simulated FFCS-L is a standard mini USB Type “B” connector with a specialized circular locking mechanism. The unit can be operated with a standard cable with a mini Type B connector, but it is highly recommended to use a cable with the locking feature. The following cables are compatible with J4:

- Bulgin part no PX0441/2M00: USB A to mini USB B, 2.0 meters
- Bulgin part no PX0441/3M00: USB A to mini USB B, 3.0 meters (eMDee PN 10765)
- Bulgin part no PX0441/4M50: USB A to mini USB B, 4.5 meters (eMDee PN 10534)

4. DIP SWITCH CONFIGURATION

On the rear of the Simulated FFCS-L is an 8 position DIP switch that controls the hardware configuration of the unit and allows the software to be able to communicate with multiple units of the same type. Each similar unit in the same system (connected to the same PC) should have a unique DIP switch setting.

The first 4 switch positions (1 - 4) should always be left in their factory default setting. For the Simulated FFCS-L, the first four switches should always be set to OFF. The last 4 switch positions (5 – 8) are used to uniquely identify each unit in the system. This allows up to 16 of the same type of unit to be connected to the same PC and allows the software to identify each according to the DIP switch settings. The table below shows the possible settings for the DIP switch:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | Unit ID |
|-----|-----|-----|-----|-----|-----|-----|-----|---------|
| OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | 0 |
| | | | | OFF | OFF | OFF | ON | 1 |
| | | | | OFF | OFF | ON | OFF | 2 |
| | | | | OFF | OFF | ON | ON | 3 |
| | | | | OFF | ON | OFF | OFF | 4 |
| | | | | OFF | ON | OFF | ON | 5 |
| | | | | OFF | ON | ON | OFF | 6 |
| | | | | OFF | ON | ON | ON | 7 |
| | | | | ON | OFF | OFF | OFF | 8 |
| | | | | ON | OFF | OFF | ON | 9 |
| | | | | ON | OFF | ON | OFF | 10 |
| | | | | ON | OFF | ON | ON | 11 |
| | | | | ON | ON | OFF | OFF | 12 |
| | | | | ON | ON | OFF | ON | 13 |
| | | | | ON | ON | ON | OFF | 14 |
| | | | | ON | ON | ON | ON | 15 |

5. USB SOFTWARE DRIVERS

The software drivers for the Simulated FFCS-L are included with the software application that will be used to control the simulated communications system. The following applications are compatible with the Simulated FFCS-L:

- eMDee PN 10492: Software, Communications System, Simulated VIC-3/L

The USB drivers for the Simulated FFCS-L are included in the installed files of the system application. Please refer to the software installation instructions for more detailed information about installing the drivers for this device.