

Series 3D50 Development Kit Hardware Setup Guide



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Revision History

Revision	Date	Description
A	12/16/2015	Original Release
B	03/07/2016	Added USB to CAN adapter to equipment list

Introduction

These instructions describe how to connect the 3D50 Display to its development board and how to connect the power, Ethernet, CAN bus, and RS-232 serial bus. These instructions are applicable to doing software development for the 3D50 Display using either the Qt Development environment or the Grayhill VUI Builder© software.

Equipment from Grayhill Included with 3D50Dev-100 Kit

- 3D50VT-100 Display
 - 3D50 Mounting Frame
 - 3D50 Development Stand
 - 3D50 Breakout Board
 - 3D50 18-pin DT cable to connect 3D50 Display to Breakout Board
 - USB to CAN adapter to provide CAN port for PC
 - DB9 cable to connect CAN adapter port to 3D50 Breakout Board
 - 12VDC Universal Power Supply
 - DB9 cable to connect PC serial port to 3D50 Breakout Board *
 - USB to Ethernet adapter to provide Ethernet port on 3D50 *
 - Ethernet cable to connect PC Ethernet port to 3D50 Ethernet adapter *
- * These items are only provided on kits shipped after January 1, 2016

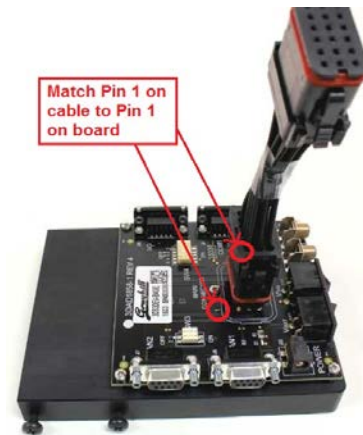
Hardware Setup Instructions

Note that the color of the cables shown in the pictures below may be different than the color of the cables provided.

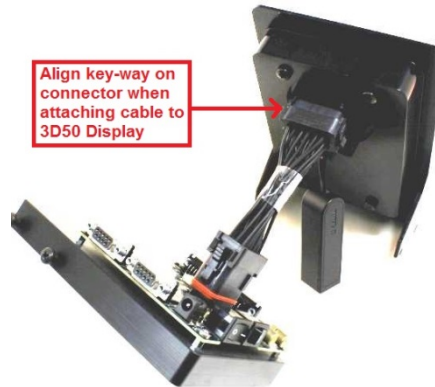
1. Mount the 3D50 Display to the mounting frame using the four provided screws
2. Open the rubber cover on the back of the 3D50 display and plug in the USB to Ethernet adapter (if developing with Qt).



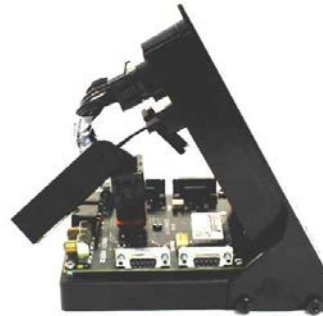
3. Connect the 18-pin DT cable to Breakout Board. Be sure to match Pin 1 on the cable to Pin 1 on the Breakout Board.



4. Connect 18-pin DT cable to back of the 3D50 Display. Note that this connector is keyed.



5. Mount the frame with the 3D50 Display to the Breakout Board.



6. Connect Ethernet cable to USB to Ethernet adapter. (if developing with Qt)



7. Connect DB9 serial cable to Breakout Board COM 1 port. (if developing with Qt)
8. Attach other end of this cable to the serial port on the development PC.



9. Connect the power cable to the Breakout Board.



10. Attach the other DB9 cable to the CAN 1 port on the Breakout Board.

11. Attach the other end of this cable to the USB to CAN adapter.



PC to CAN-bus Interface

The Series 3D50 Display device has two CAN bus interfaces that can be used for various purposes. The Grayhill VUI Builder© software communicates with the 3D50 Display via either CAN bus. The VUI Builder© software tool currently supports using a GridConnect USB to CAN adapter which requires adapter software from GridConnect. The GridConnect software also provides tools for monitoring the CAN bus and sending messages on the CAN bus without using the VUI Builder© software. The GridConnect software can be installed on the development PC as shown below:

1. Insert the disc or download the software from www.gridconnect.com and install the PCAN USB software.
2. A copy of the Dynamic Link Library (PCANBasic.DLL) provided with the USB PCAN adapter needs to be saved in the same folder as the VUI Builder executable. Make sure that the 32-bit version is used as opposed to the 64-bit version of the DLL. (Note: The PCANBasic.dll file can be found in the folder “\PreRelease\PCAN-Basic v3.4 (CAN-FD Support)\Win32” on the disc. It’s also available on the GridConnect web site under “Support -> Product Packages -> PCAN-USB package”. Then look in the download file “usb.zip” under the folder “PCAN-Basic API\Win32\”.)

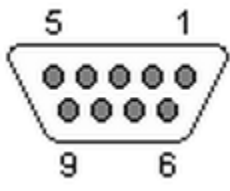
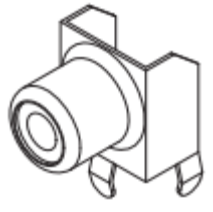
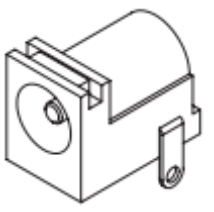


Appendix A.

POWER REQUIRMENT

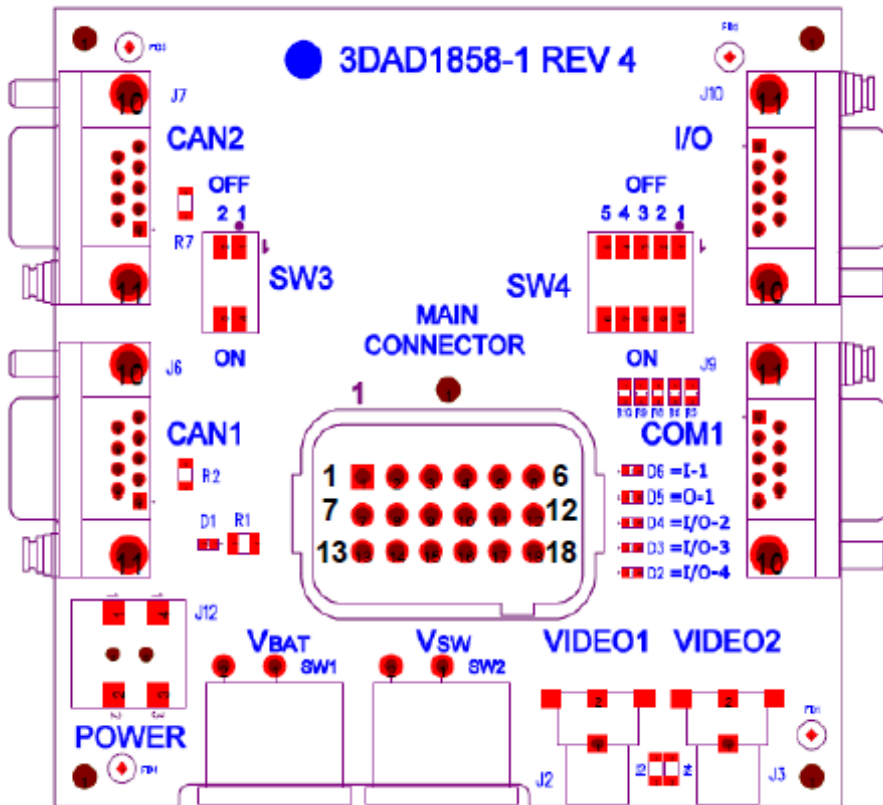
Voltage: 12V

Current: 1.5A

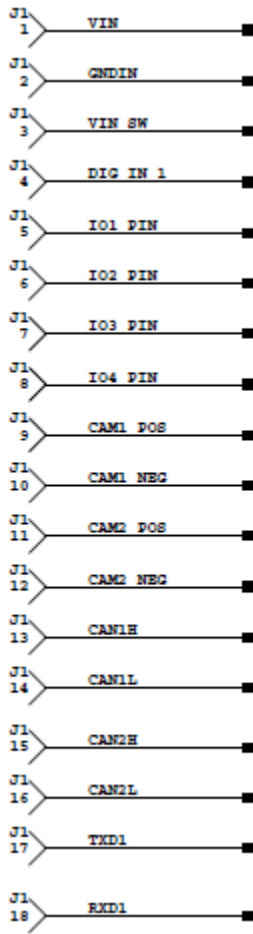
<p>J6, J7, J9, J10</p>  <p>TYCO 747844-6</p>	<p>J2, J3</p>  <p>CUI RCJ-014-SMT</p>	<p>J12</p>  <p>CUI PJ-002AH</p>
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J1 MAIN CONNECTOR Mating Connector
 HOUSING: DEUTSCH DT16-18-SA-K004
 TERMINAL: DEUTSCH 0462-201-16141

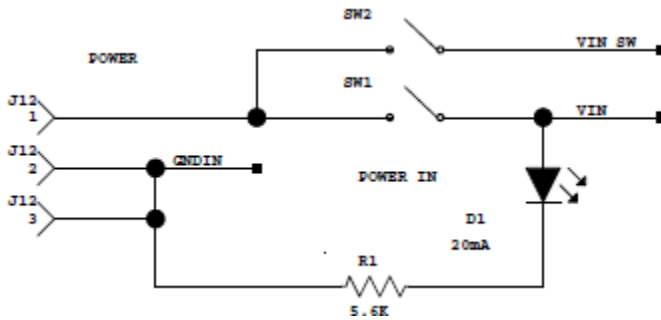
SCHEMATIC



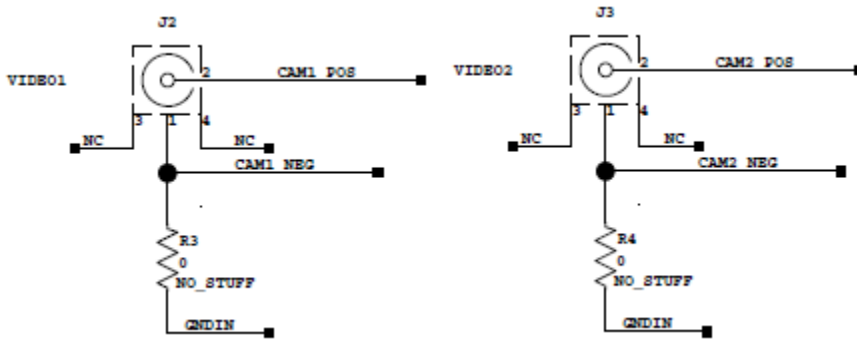
MAIN CONNECTOR (J1)



POWER SWITCHES VBAT (SW1) and VSW (SW2)



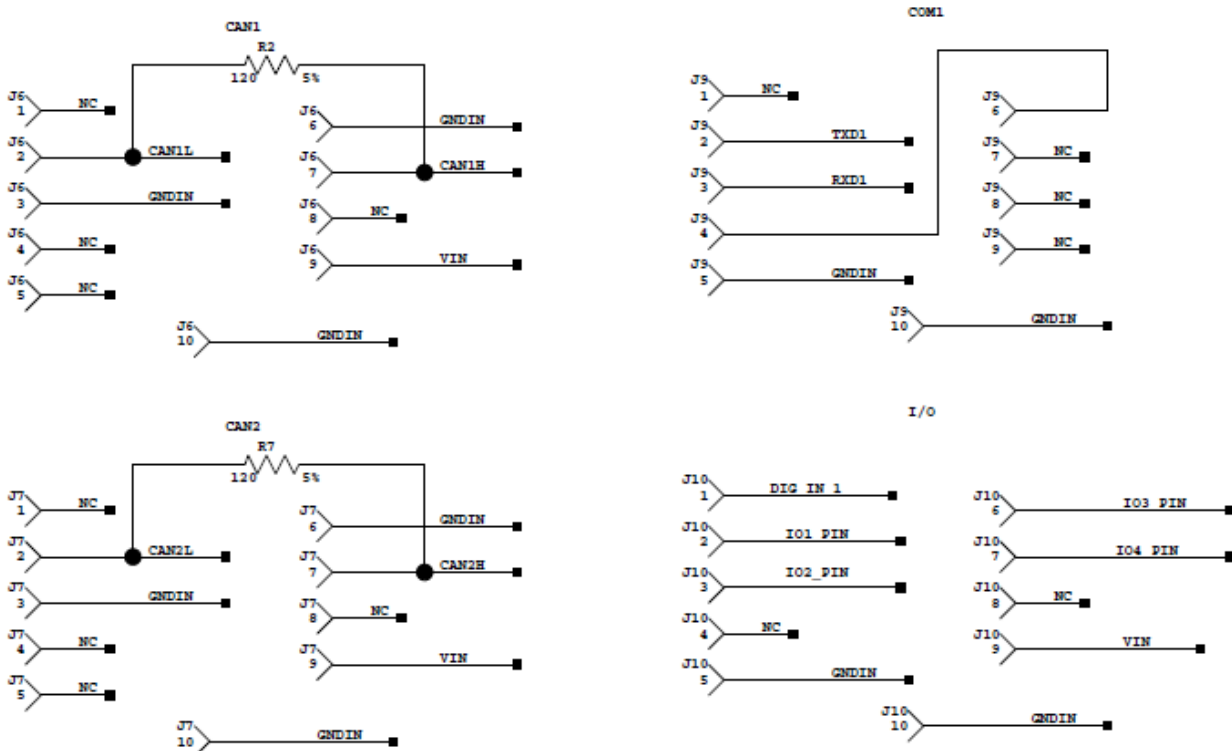
VIDEO INPUTS CAM1 (J2) and CAM2 (J3)



CAN CONNECTORS CAN1 (J6) and CAN2 (J7)

RS232 CONNECTOR COM1 (J9)

IO CONNECTOR I/O1 (J10)



DIP Switch SW3

Leave both switches open (OFF) for normal operation.

Closing both switches (ON) connects CAN port 1 to CAN port 2.

DIP Switch SW4

Leave all switches open (OFF) for normal operation.

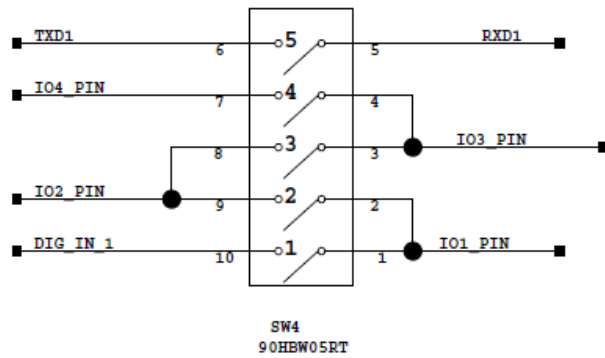
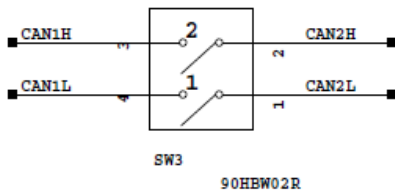
Closing switch 1 (ON) connects DIG_IN_1 to IO1

Closing switch 2 (ON) connects IO2 to IO1

Closing switch 3 (ON) connects IO2 to IO3

Closing switch 4 (ON) connects IO4 to IO3

Closing switch 5 (ON) connects TXD1 to RXD1



LEDs D2,D3,D4, D5, and D6

LEDs are illuminated if their corresponding signal is high.

