

DMX Data Analyzer Board

Overview

DMX Analyzer - Tester PC Board

Design your own enclosure with an analyzer / tester display or add to your existing equipment or system. The DMX Analyzer is a 16 x 2 DMX512 / DMX LCD back lit data analyzer display unit. The DMX Analyzer displays any 4 of 512 channels at a time, and showing the numeric levels currently on those channels in several display formats. Decimal, Hexadecimal, Percentage, or Bar Graph



The 4 on-board buttons [+ , - , 10 , 100] will scroll thru the DMX channels for viewing, by holding down the ' - ' button and pressing 10 or 100 will subtract by 10 or 100. The Stats display shows the packet size, start code, and rate or (frequency). Board also features a dual input selection in programming, if your installation needs a front and rear connection, the user can easily change from the 'A' to 'B' input simply by making a front selection change. The LCD's backlight is easily adjusted with front access software setting for easy changes in those dark control room environments. The auto dim feature allows the user to set the time and dim to value. This is useful if your using battery power.

FEATURES INCLUDE:

Bar Graph Display (Displays 24 Channels at a Time)
Decimal Display, Hexadecimal Display, Percentage Display, Bar Graph Display, and Statistics Display
Auto Dim (User Set Timer)
Dual Input Option

Fully assembled printed circuit board. The PCB assembly consists of 3 boards, the 16 x 2 back lit display, detachable 4 button and contrast board, and the control board. The PCB includes a clear LCD cover that mounts with adhesive strips on your custom enclosure. +5VDC input or with the onboard +5V regulator, the Analyzer has a +7V ~ +15VDC input voltage range.

SPECIFICATIONS:

POWER INPUT: +5VDC regulated, 5.5 x 2.1 x 9.5 connector - center positive. If a regulator option is installed +7VDC ~ +15VDC
FUSE: .7 ~ 1 Amp Fast Acting 5 X 20 mm
POWER USE: Approx: 42mA back light=0, 73mA back light=5, 62mA back light=0 & B circuit installed, 140mA back light=25, 160mA back light=25 & B circuit installed. (Auto Dim option available)

DATA TYPE: DMX512 (250Khz)

DATA INPUT:

DMX512 - 5 (or 3) pin male XLR, *Pin 1 - (Shield) Not connected, Pin 2 Data - , Pin 3 Data +*

DATA OUTPUT:

DMX512 outputs - 5 (or 3) pin female XLR's, *Pin 1 - Power supply common, Pin 2 Data - , Pin 3 Data +*

DIMENSIONS Approx:

PCB's: CPU and LCD boards: 3.6" W x 1.75" L x 1.63" H (including standoffs)

CPU and LCD boards with Button board attached: 5.04" W

Button board: 1.7" W x 1.13" L x .95" H

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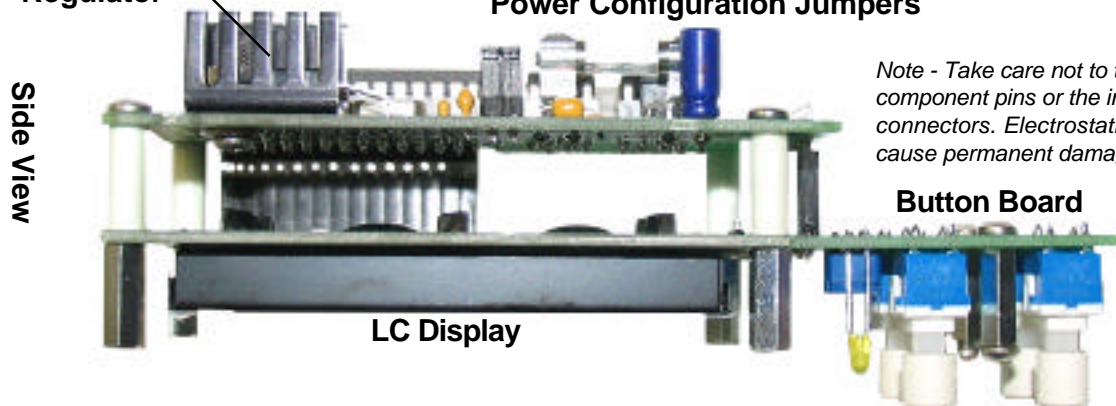
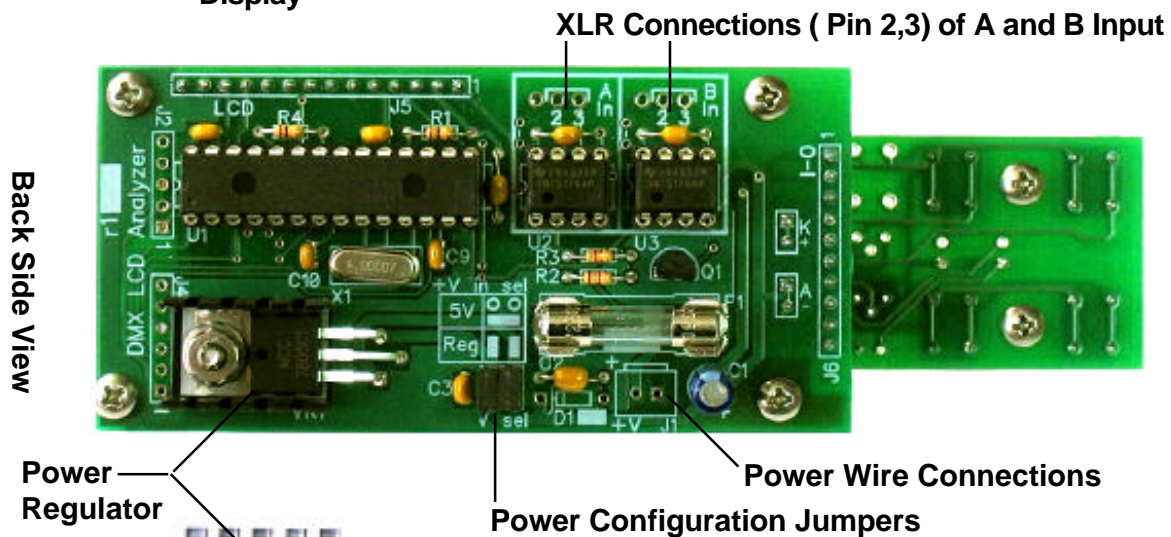
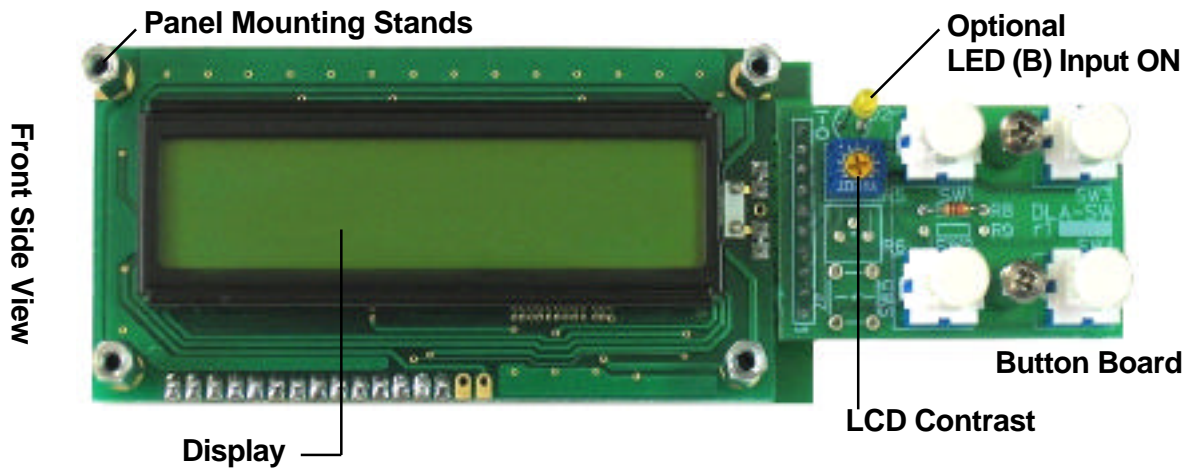
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DMX Data Analyzer Board - Components / KIT

Components

CAUTION Handle the PCB with static electricity precautions - touch a grounded source to discharge static electricity before touching the PCB anytime.



Note - Take care not to touch the component pins or the inner pins of the connectors. Electrostatic discharge may cause permanent damage to the unit.

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DMX Data Analyzer Board - Setup

POWER INPUT SETTINGS AND CONNECTIONS

Assemble the power setup harness or power connection cable and attach to PCB (Optional kit- not included)

Set the Voltage Regulator Jumpers according to the voltage input that will be used. If +5VDC is to be connected set the jumpers to the OFF position. This will disable the regulator and the connected power source will power the PCB directly. If a power source is connected that is in the range of +7VDC ~ +15VDC then set the jumpers to the ON position. For example, use this setting for a 6 cell battery pack with 1.5V batteries totaling 9V.

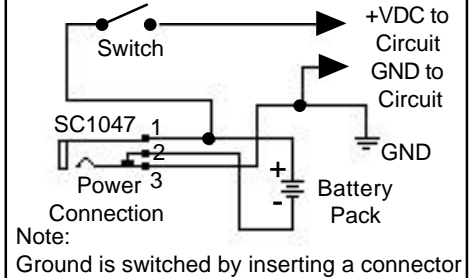
NOTE - If a voltage source greater than 12VDC is used it is recommended to remove and mount the regulator to the metal chassis or a heat sink to dissipate excessive heat.

NOTE:

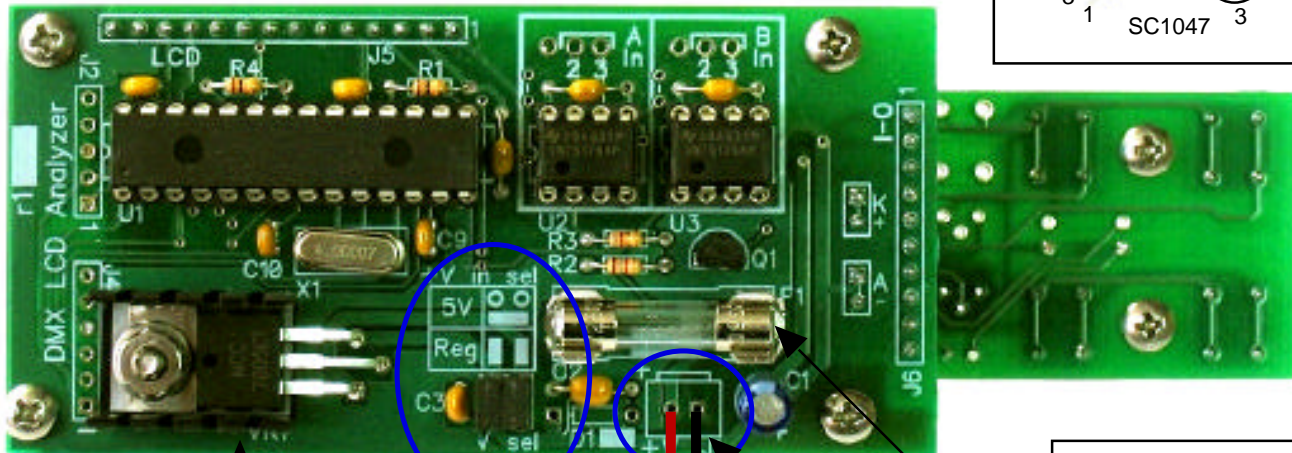
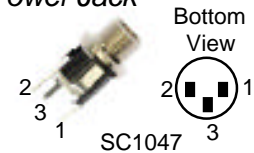
DO NOT EXCEED THE VOLTAGE RANGE.
DO NOT SOURCE OTHER DEVICES FROM THIS PC BOARD.
INSURE THAT THE VOLTAGE SOURCE IS A REGULATED DC VOLTAGE

7V - 15VDC Power Harness

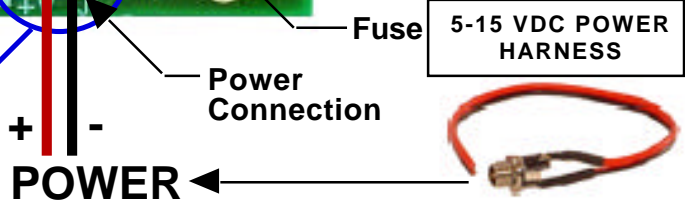
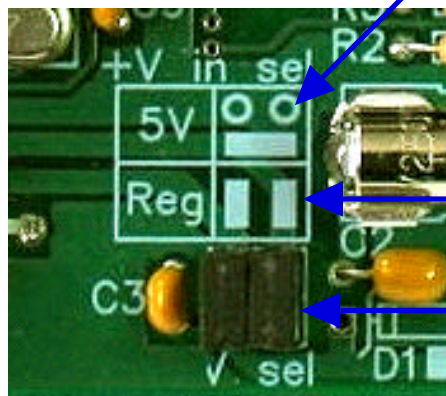
Suggested Battery Schematic



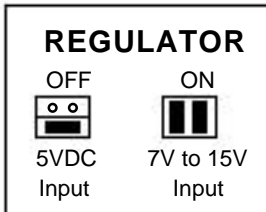
Power Jack



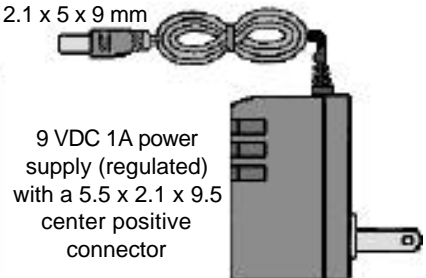
REGULATOR



Jumper Setup



2.1 x 5 x 9 mm

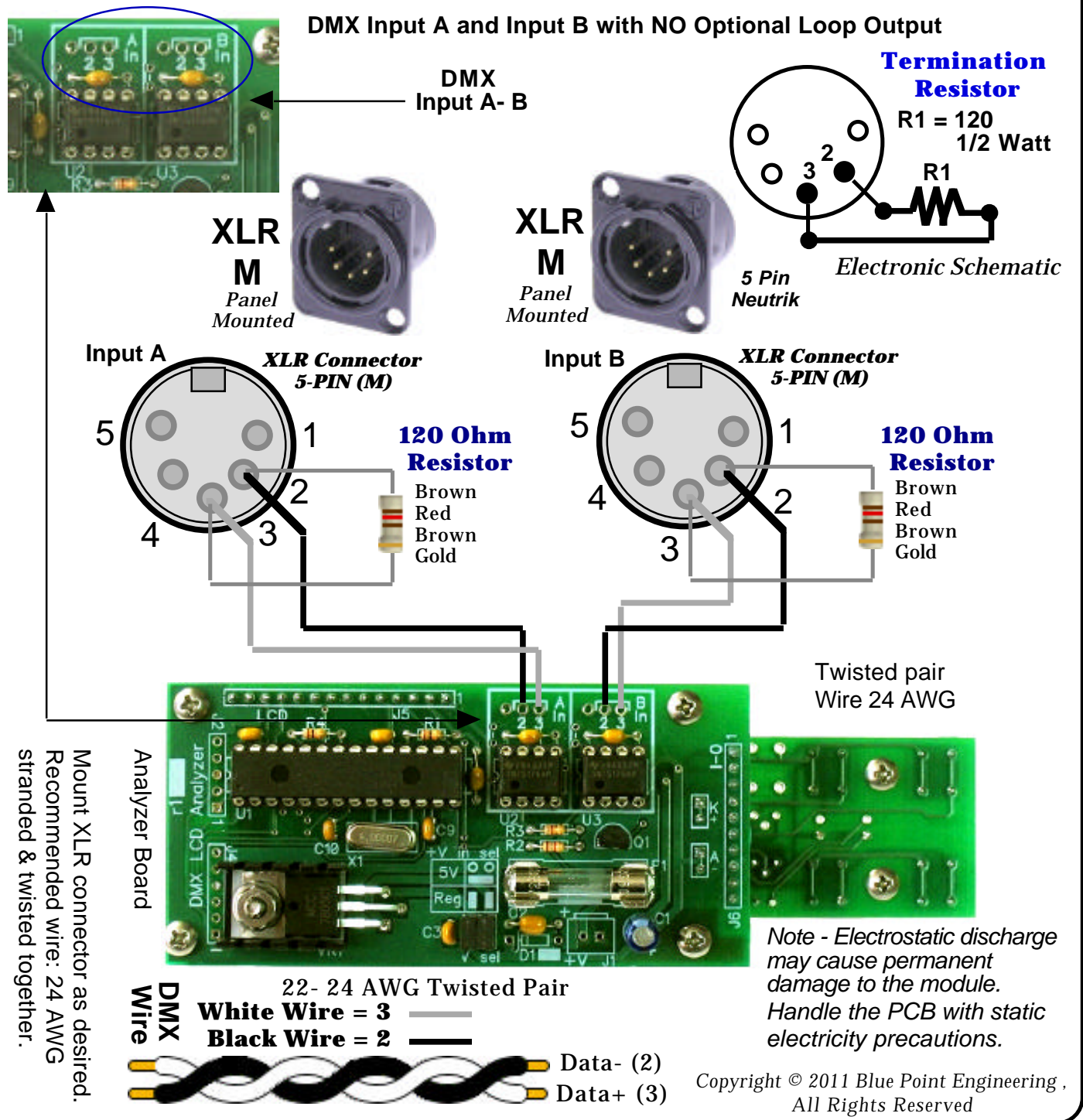


DMX Data Analyzer Board - Setup 1

INPUT Only

LAYOUT & WIRING DIAGRAM - 1

Determine the Hardware / Enclosure Box layout if needed and assemble the DMX connectors to the Box and PCB. (See optional enclosure setup and layout drawing overviews for possible configurations)



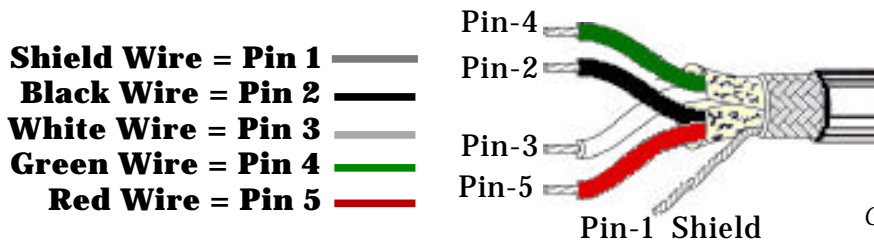
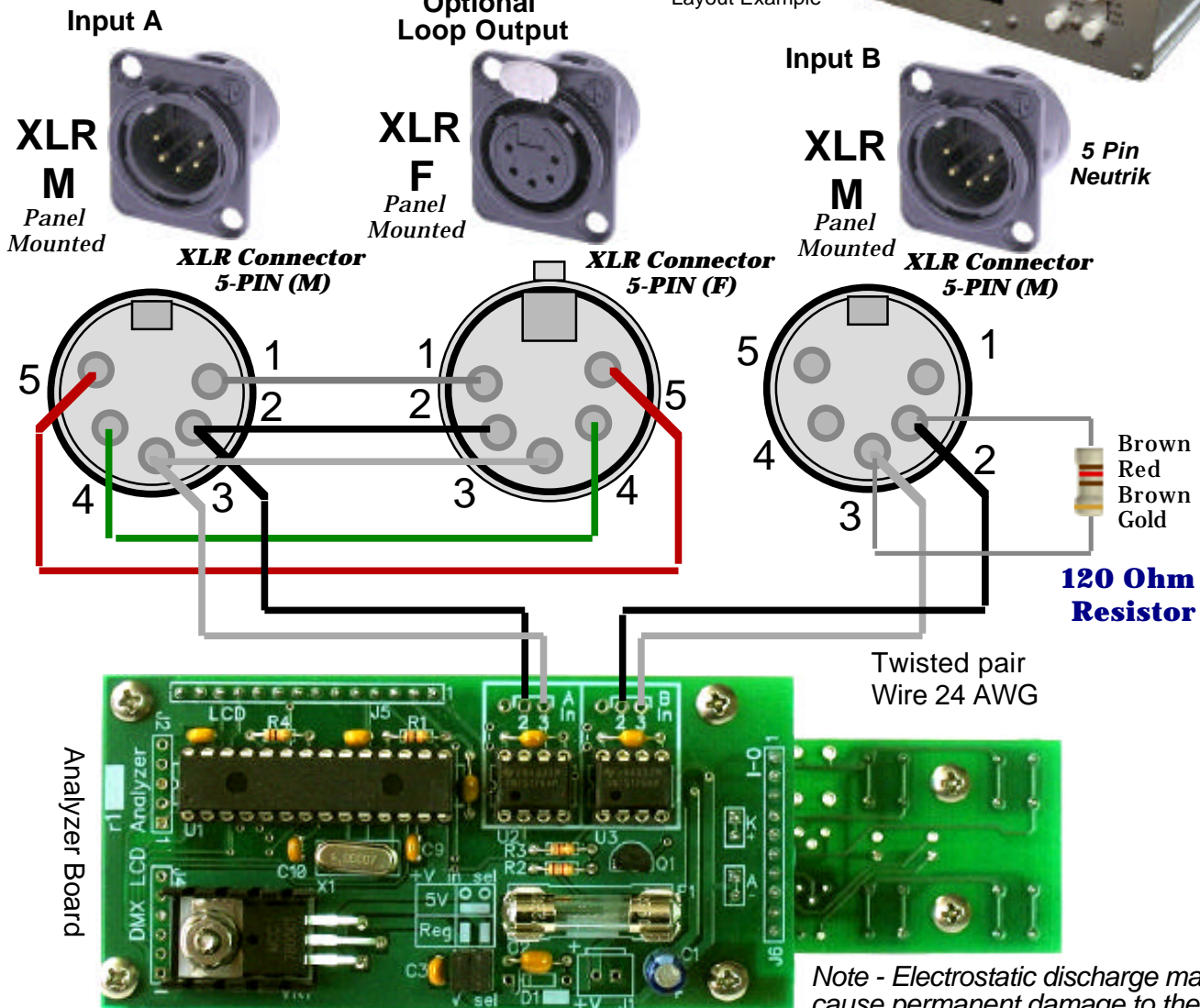
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DMX Data Analyzer Board - Setup 2

INPUT- OUTPUT

LAYOUT & WIRING DIAGRAM - 2

DMX Input A and Input B and Optional Loop Output



Mount XLR connector as desired. Recommended wire: 24 AWG stranded & twisted together.

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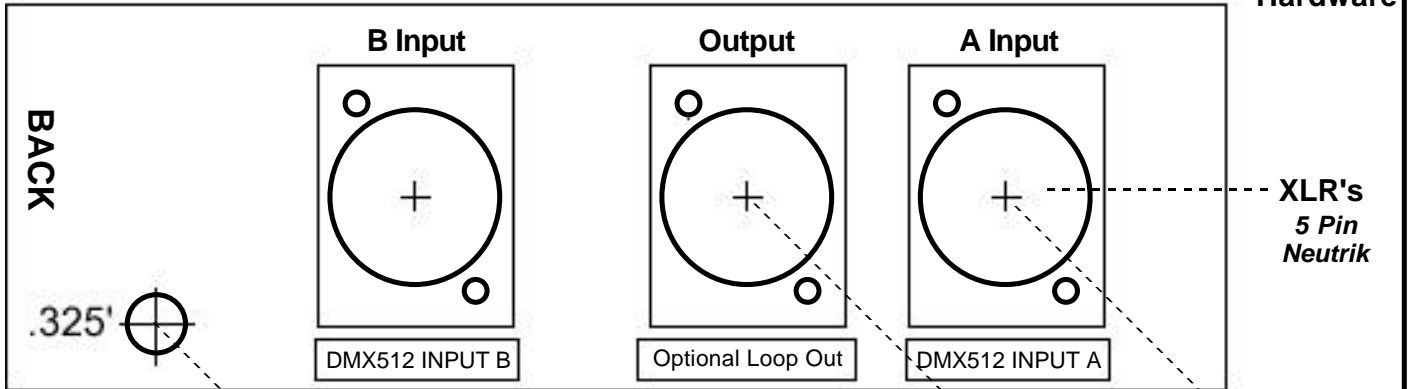
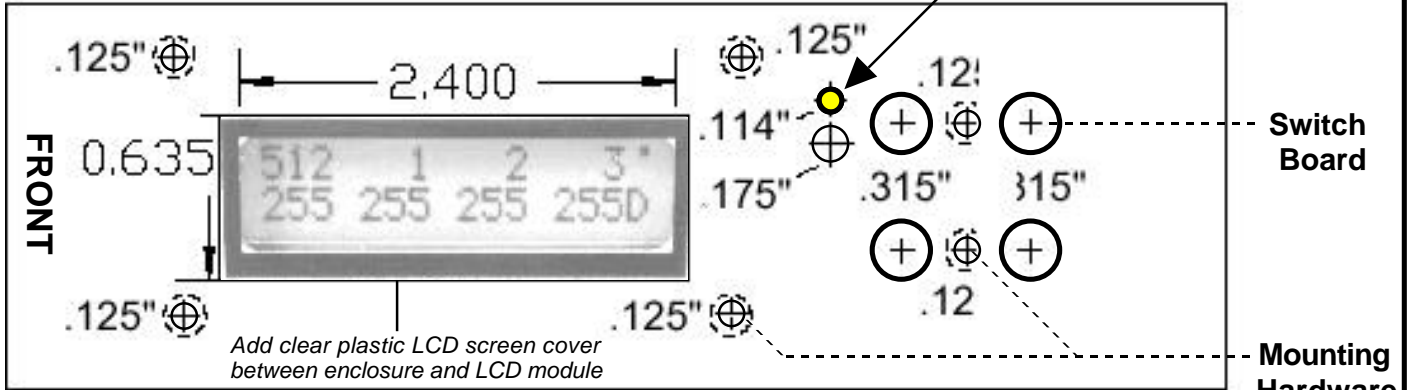
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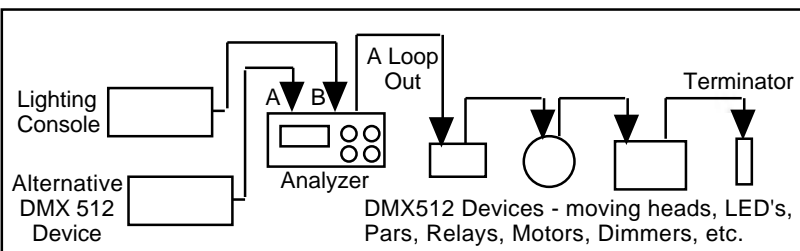
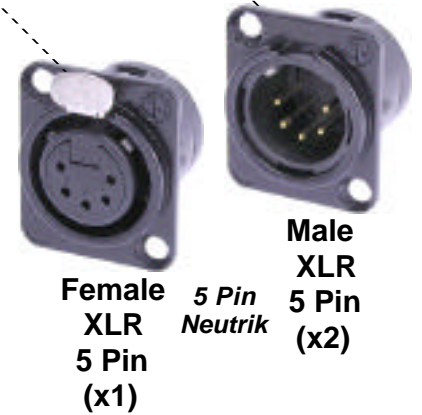
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DMX Data Analyzer Board - Setup

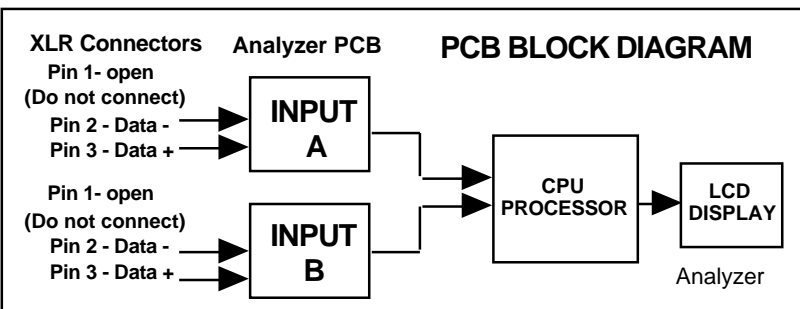
Optional - Example LAYOUT



Any 5 pin XLR connector manufacture can be used; chassis mount or inline.



Configuration Examples

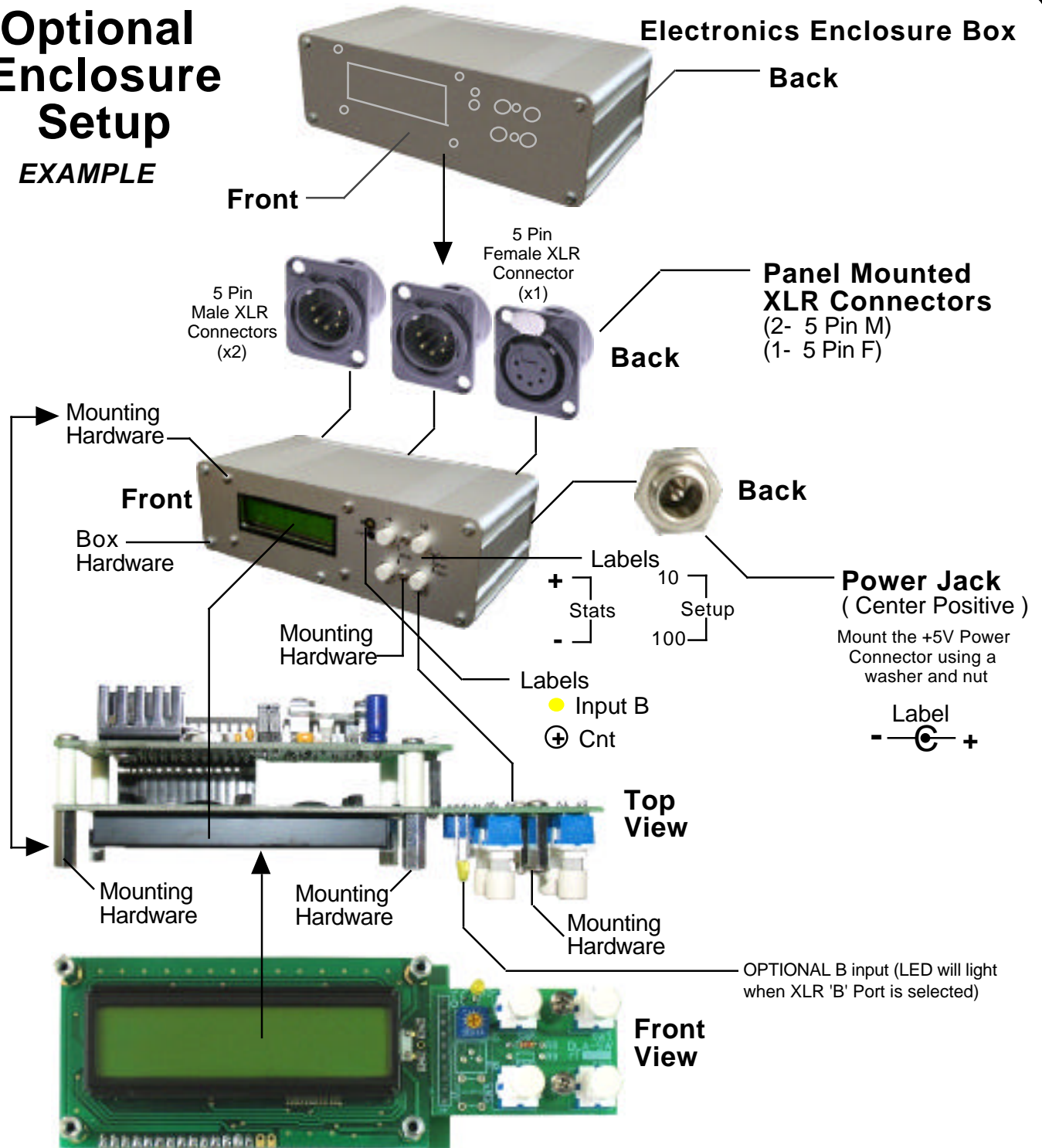


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DMX Data Analyzer Board - Optional Setup

Optional Enclosure Setup

EXAMPLE



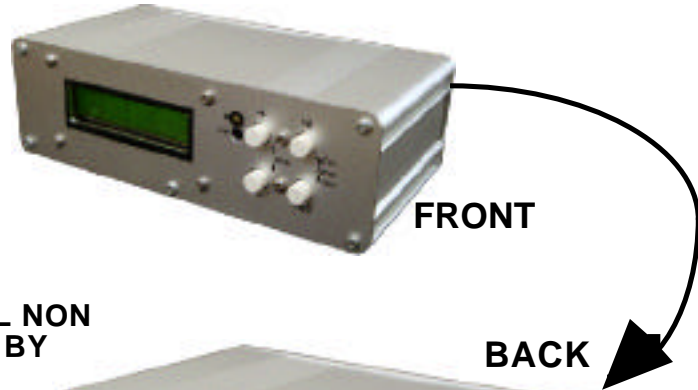
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DMX Data Analyzer Board - Optional Setup

Optional Setup



IMPORTANT NOTE - TERMINATE ALL NON LOOP THRU INPUT CONNECTOR(S) BY SOLDERING A 120 OHM RESISTOR ACROSS XLR PINS 2 AND 3.

Power Connection

Belden DMX Cable

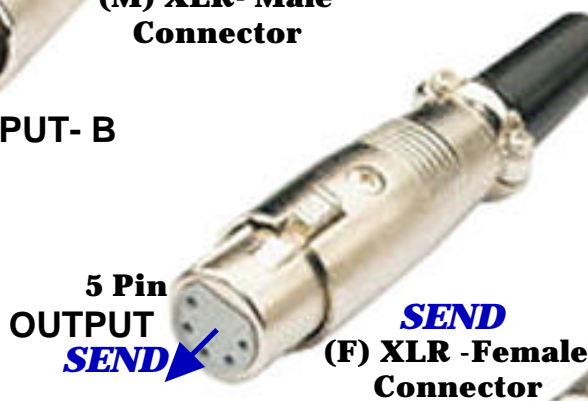
Belden DMX Cable



RECEIVE
(M) XLR- Male Connector

5 Pin
INPUT- B

RECEIVE



5 Pin
OUTPUT
SEND
(F) XLR -Female Connector

Switchcraft XLR- Connectors



RECEIVE
(M) XLR- Male Connector

5 Pin
INPUT - A

RECEIVE

DMX Wire

22- 24 AWG Twisted Pair with shielded and rubber cover jacket

White Wire = 3

Black Wire = 2



Data- (2)

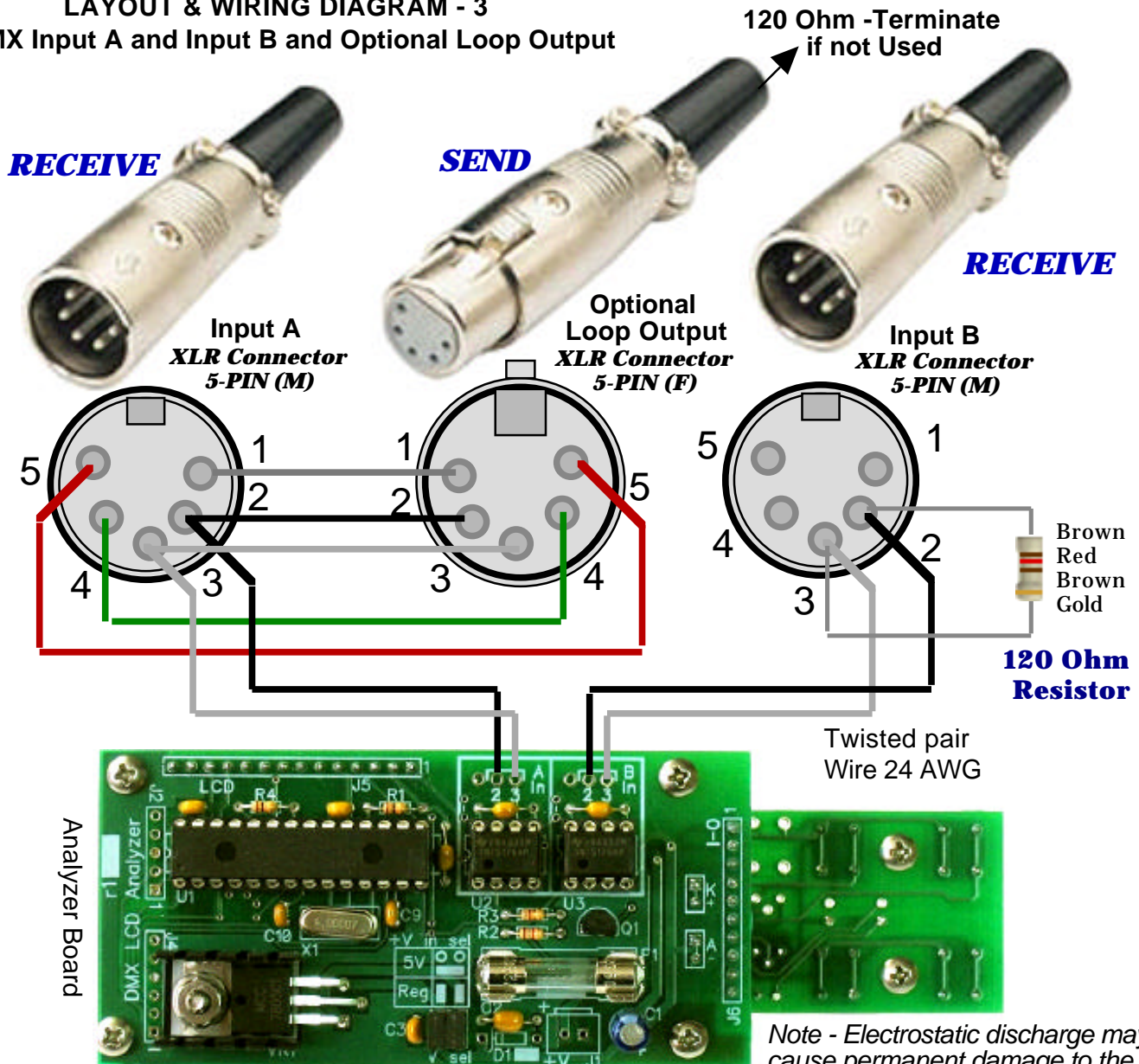
Data+ (3)

DMX Data Analyzer Board - Setup 3

NO ENCLOSURE

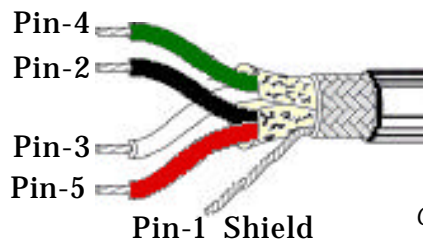
LAYOUT & WIRING DIAGRAM - 3

DMX Input A and Input B and Optional Loop Output



Note - Electrostatic discharge may cause permanent damage to the module. Handle the PCB with static electricity precautions.

- Shield Wire = Pin 1
- Black Wire = Pin 2
- White Wire = Pin 3
- Green Wire = Pin 4
- Red Wire = Pin 5



Mount XLR connector as desired. Recommended wire: 24 AWG stranded & twisted together.

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DMX Data Analyzer Board - OPERATION

CONNECTION

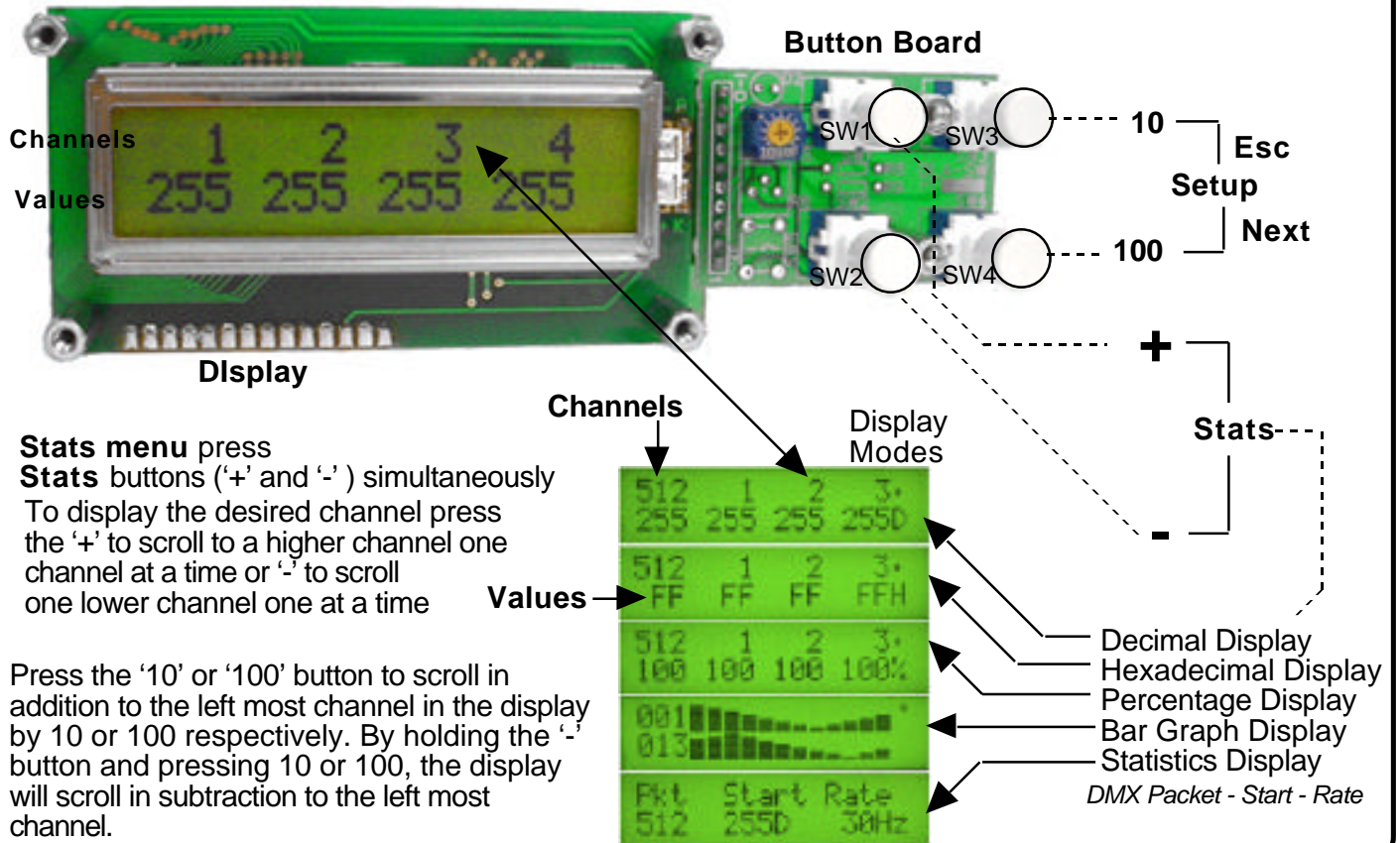
Connect a power supply into the power input connector. Connect a DMX512 source into the A or B input. If a loop through connector is installed either terminate with a 120 ohm terminator or loop to other devices. Insure that input A or B is selected in the menu (see operation instructions below), the LCD will display the channels and data on the respective input or "no signal" if a valid DMX signal is not present. The Analyzer can be connected or inserted anywhere on the DMX512 daisy chain.

OPERATION

Once a DMX512 signal is established, any of the 512 channels and levels can be displayed. To display the desired channel press the '+' to scroll to a higher channel one channel at a time or '-' to scroll one lower channel one at a time. Press the '10' or '100' button to scroll in addition to the left most channel in the display by 10 or 100 respectively. By holding the '-' button and pressing 10 or 100, the display will scroll in subtraction to the left most channel.

The levels of each channel are updated several times per second and will display the latest value. To enter the **stats menu** press the **Stats** buttons ('+' and '-') simultaneously. To escape and return to the DMX512 channel display, press the 'Esc (10) button. To enter the **setup menu** press the **Setup** buttons ('10' and '100') simultaneously. On each menu use the '+' or '-' button to change the values. Press Next (100) to go to the next menu setting, or press Esc (10) to return exit the setup menu.

Note - Esc and Next will permanently store the value set until changed.
(See the Analyzer Menu Flow Charts for setup menu options.)



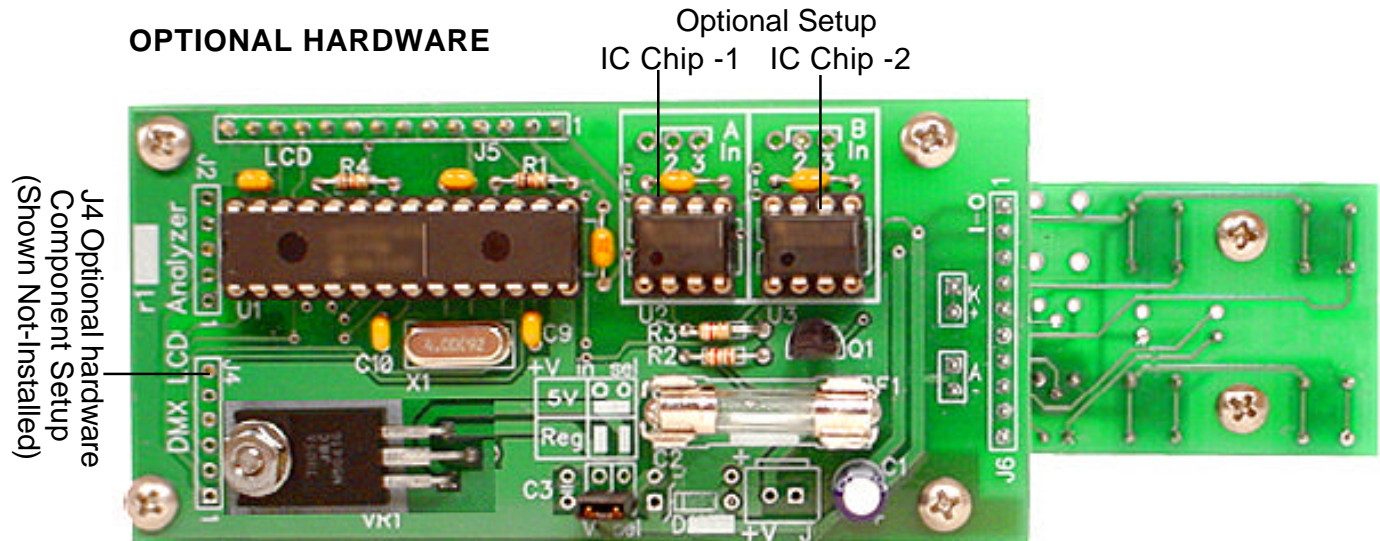
DMX Data Analyzer Board - OPERATION

OPTIONAL HARDWARE SETUP (Auto / Voltage Monitor Hardware - AVMH)

If the analyzer PC board is equipped with optional Dual Input =(DMX A-B Input) Auto Off, and / or optional Voltage Monitor hardware, these settings are software activated by the Hardware Equipped settings. The **Dual Input** option (Input A-B) is determined by the hardware mounted on the main PCB labeled "A in" and "B in", if both IC chips are installed then this is a dual input unit. (2 Inputs can be monitored, A-B)

The optional **Battery Auto Off** and **Voltage Monitor** setup is determined by hardware connected to the main PCB' **J4** connector. If any of these other optional features are installed, update these optional settings by entering the Setup Hardware Equipped Menu by holding the "+" button and power the unit on. On each menu use the '+' or '-' button to change the values. Press Next (100) to go to the next menu setting, or press Esc (10) exit the setup menu. *Note - Esc and Next will permanently store the value set until changed.* The Voltage Threshold setting is a numeric value indicating the voltage level and lower value that will cause the 'low battery' or 'b' to be displayed. This value is factory preset (813) and should stay in a range of 800 (approx. 6.83 Battery Volts). to 1071 (approx. 9 Battery Volts).
*Formula: [(A * 15.25%) / .00122 = X] or [(X * .00122) / 15.25% = A] Where A is the threshold voltage and X is the numeric value. (5/4096=.00122V per step) (.43V drop across auto switch) .*

NOTE- ACTIVATING SOFTWARE FEATURES WITHOUT THE HARDWARE ATTACHED MAY CAUSE ERRATIC BEHAVIOR OF THE BOARD.



Using Dual Input DMX512 Data Analyzer Board Features

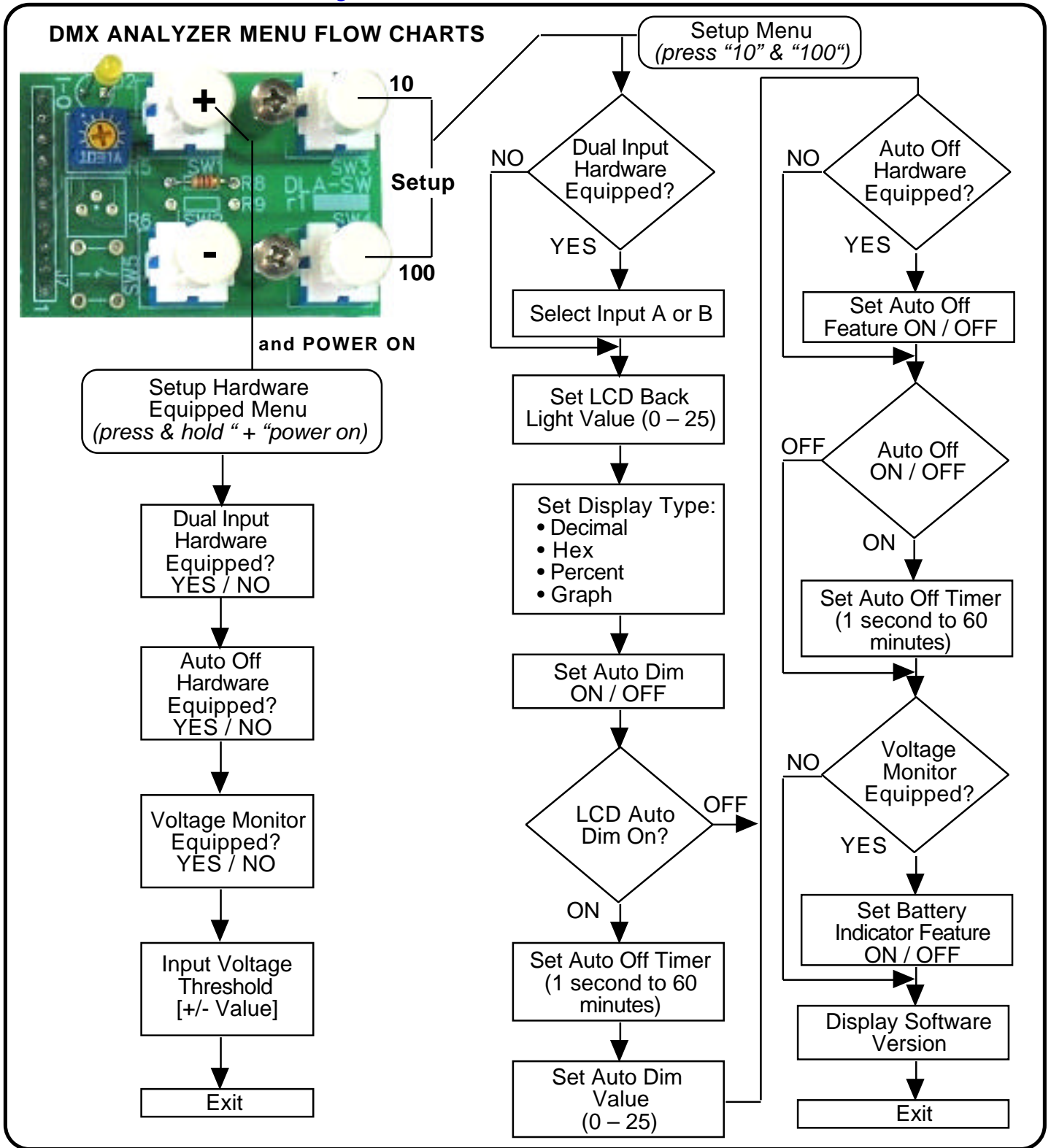
Connect any 2- DMX512 source and display any of the DMX512 channels and the levels currently on those channels, allowing the user to scroll to any channel to view the levels on the respective channels. The (4) buttons: +, -, 10, & 100, allows the user to scroll through the DMX channels for viewing, and displays in either *decimal, hex, percentage, or bar graph* value. The stats menu displays the *packet size, start code, and rate (amount of packets per second)* of the selected input. The user can easily select the 'A' or 'B' input simply by a front menu / buttons selection. The LCD's back light setting is also a menu selection and easily adjusted (no tweaker required) in dark control room environments. The **Auto Dim** feature will automatically change the LCD back light to a user preset value after a user preset timer elapses.

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DMX Data Analyzer Board - MENU OPERATION



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