

# DLA

## DMX512 Analyzer



**ELM Video  
Technology, Inc.**  
*"Innovative Midi and DMX Products"*



DLA



DLA-HH

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## **IMPORTANT SAFEGUARDS**

Read and follow all instructions BEFORE installing or using this product.

Do not attach any product or accessories that the manufacturer does not recommend.

Keep in a well ventilated environment.

Never use or store the unit in places that are:

- Subject to temperature extremes (direct sunlight, in an enclosed vehicle, near a heating duct)

- Wet, damp and humid areas

- Dusty

- Subject to high levels of vibration

Use proper Power Sources. This product should be operated only from the type of power source indicated on the marking label or as is described in this manual.

Route power cord safely. Don't allow twists, bend the power cord, or place heavy objects on it.

Ground your equipment whenever possible.

Do not attempt to service this product unless noted otherwise.

If the unit stops working for any reason, unplug the power and other connections until repaired.

This unit should be used only with a rack or chassis that is recommended by the manufacturer.

Unplug the device when not in use.

Keep away from small children.

## **DLA OVERVIEW**

The DLA is a Dual Input DMX512 Data Analyzer. Connect any DMX512 source and display any of the 512 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 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.

### **DLA-HH Portable ONLY**

The **Auto Off** feature will enable the unit to turn itself off after a user preset time elapses. If the battery level is low the display will flash the letter 'b', while in the value display mo. This threshold value can be modified, see the HARDWARE SETUP section for more information.

**NOTE - If the unit is powered by battery keep the LCD back light as low as possible and use the auto dim feature to preserve battery life. The recommended setting is 1.**

## **CONNECTION**

Connect the 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 DLA can be connected or inserted anywhere on the DMX512 daisy chain. *(For the DLA-HH, if the loop out connector is not used always turn ON the terminate switch, if the loop out is connected turn OFF the terminate switch.)*

## **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 **DLA Menu Flow Charts** for setup menu options.

### **DLA-HH Portable ONLY**

To power the unit press the power button on the right side. Set the Auto Off feature on/off and set the timer value to the desired setting.

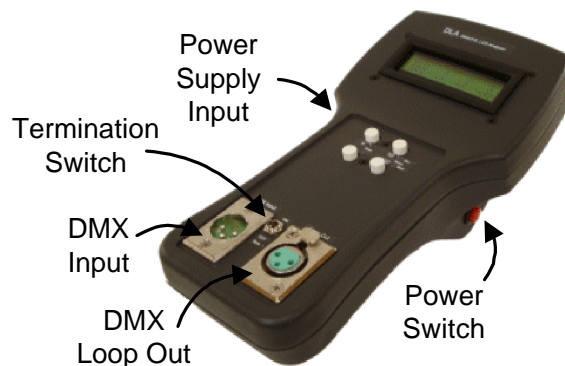
## HARDWARE SETUP

If your DLA analyzer is equipped with Dual Input, Auto Off, and/or Voltage Monitor hardware, these settings are software activated by the **Hardware Equipped** settings. The Dual Input option is determined by the hardware mounted on the main PCB labeled "A in" and "B in", if both chips are installed then you have a dual input unit. The Auto Off and Voltage Monitor option is determined by hardware connected to the main PCB' J4 connector. If any of these features are added update these 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) to exit the setup menu. *Note - Esc and Next will permanently store the value set until changed* See the **DLA Menu Flow Charts** for setup menu options. 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 (apx. 6.83 Battery Volts). to 1071 (apx. 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).*

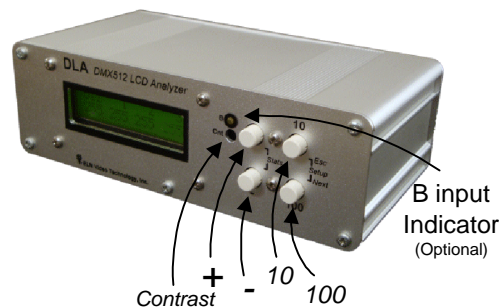
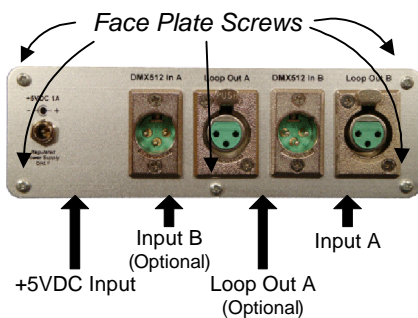
**NOTE-ACTIVATING SOFTWARE FEATURES WITHOUT THE HARDWARE ATTACHED MAY CAUSE ERRATIC BEHAVIOR.**

### DLA-HH (PORTABLE) LAYOUT

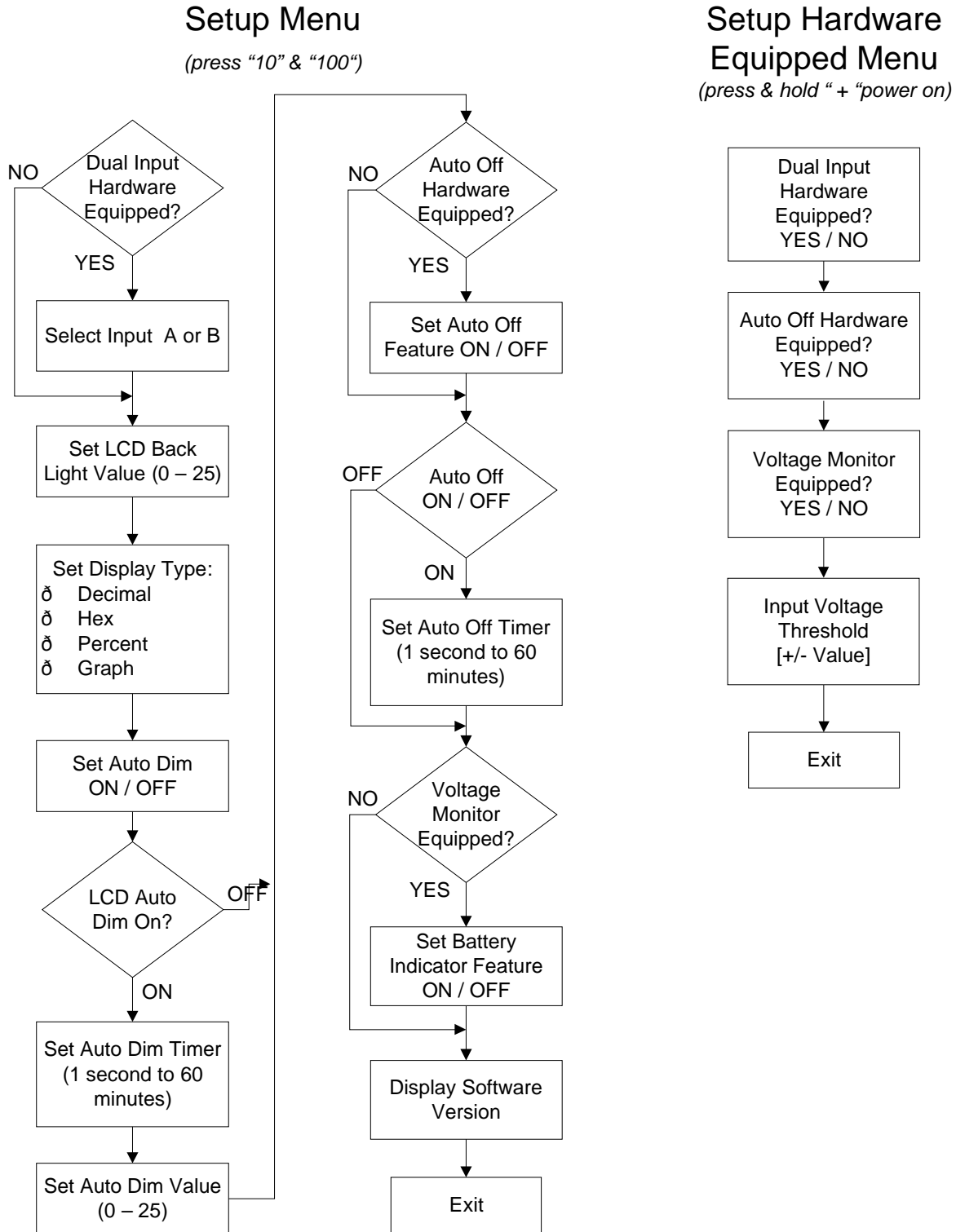


*For battery replacement, remove the 6 screws from the back of the unit and remove the back cover. Replace the battery's and carefully replace the back cover insuring that the internal wires are clear from the joining covers.*

### DLA CHASSIS LAYOUT



## DLA MENU FLOW CHARTS



## POWER INPUT SETTINGS AND CONNECTIONS

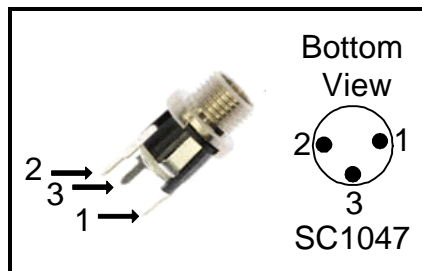
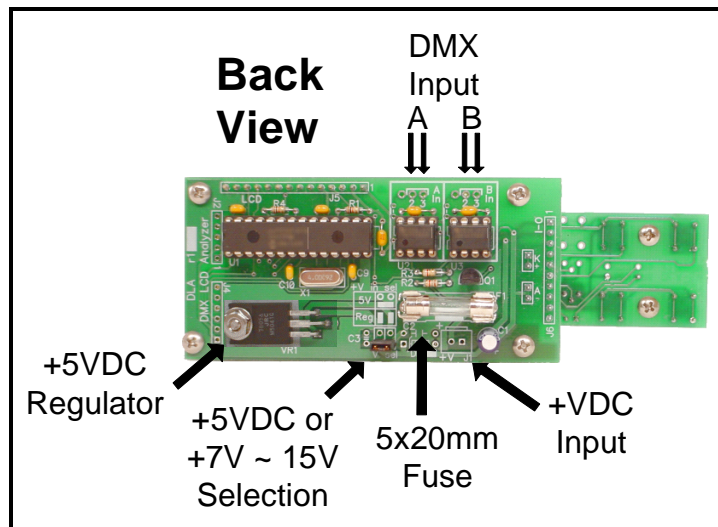
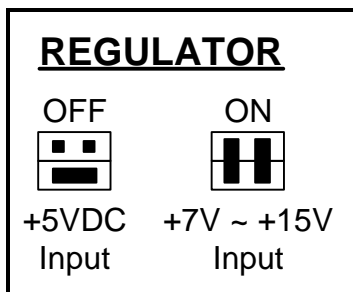
### NOTE

DO NOT EXCEED THE VOLTAGE RANGE.

DO NOT SOURCE OTHER DEVICES FROM THIS BOARD.

INSURE THAT THE VOLTAGE SOURCE IS A REGULATED DC VOLTAGE

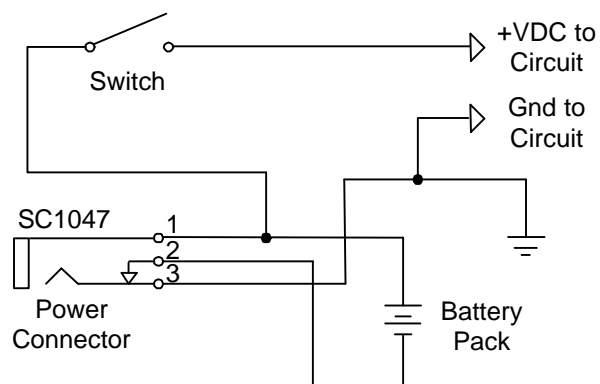
Set the Voltage Regulator Jumpers according to the voltage input that will be used. If +5VDC is to be connected set the jumpers to the OFF position. This will disable the regulator and the connected power source will power the PCB directly. If a power source is connected that is in the range of +7VDC ~ +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 9VDC is used it is recommended to remove and mount the regulator to the metal chassis or a heat sink to dissipate excessive heat.**



To input power from a battery pack, connect using this schematic.

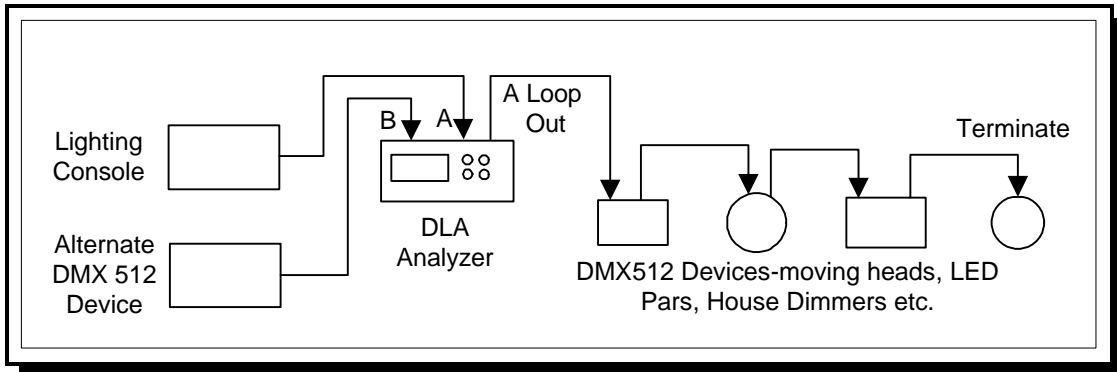
Set the LCD Back light to the lowest value necessary to conserve battery power.

### DLA Suggested Battery Schematic

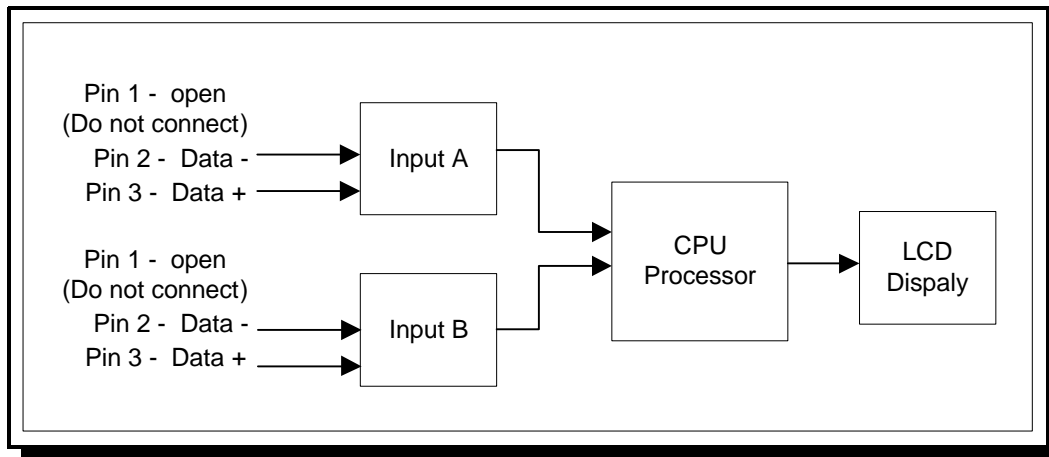


Note – Ground is switched by inserting a connector

## CONFIGURATION EXAMPLE



## PCB BLOCK DIAGRAM



**INPUT:** The inputs (pins 2 and 3) connect to a 75176 data input IC's, and send to the processor.

**OUTPUT:** The processor sends decoded data to the LC Display.

## SERVICING

**FIELD SERVICE:** For Experienced Technicians

*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.*

Disconnect all power and data connections. Remove the 5 face plate mounting screws on the PCB side. Use only direct replacement parts and use static discharge precautions. To replace an IC, using a small flat screwdriver carefully remove the IC by gently lifting up between the socket and the IC keeping the IC as flat as possible. Bend the replacement IC's legs so they are pointing straight down and not angled outward. Align each pin in the center of each pin hole and gently snap into place, all legs at one time, DO NOT insert at an angle. Insure the IC is flush on the socket and all pins are inserted.

## TROUBLESHOOTING

<b>PROBLEM</b>	<b>CHECK</b>
Unit won't power up	check fuse and power connections
If only one of the inputs doesn't work	replace the respective input IC (i.e. input A doesn't work replace IC at input A)
Display reads 'no signal'	check DMX512 input signal, connection, and polarity
Display is blank, back light works	adjust 'contrast' potentiometer possibly a bad LCD module
PCB has power but the display is blank, back light is not working	reset possible CPU failure possibly a bad LCD module

## SPECIFICATIONS

POWER INPUT:	+5VDC regulated 5%, 5.5 x 2.1 x 9.5 connector - center positive or if a regulator option is installed +7VDC ~ +15VDC
FUSE:	.7 ~ 1 Amp Fast Acting 5 X 20 mm
POWER:	Apx 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
DATA TYPE:	DMX512 (250Khz)
DATA INPUT:	DMX512 - 5 (or 3) pin male XLR, <i>Pin 1 - (Shield) Not connected, Pin 2 Data - , Pin 3 Data +</i>
DATA OUTPUT:	DMX512 outputs - 5 (or 3) pin female XLR's, <i>Pin 1 - Power supply common, Pin 2 Data - , Pin 3 Data +</i>
DIMENSIONS:	
DLA:	Enclosure: 6.68 W x 3.15" D x 2.11" H ( <i>excluding connectors</i> )
DLA-HH (Portable):	Enclosure: 4.57" W x 2" D ( <i>bottom portion</i> ) x 8.66" H Battery's (6) AA
PCB's:	CPU and LCD boards: 3.6" W x 1.75" L x 1.63" H ( <i>including standoffs</i> ) CPU and LCD boards with Button board attached: 5.04" W Button board: 1.7" W x 1.13" L x .95" H