



# USB Controlled DMX interface

Control DMX fixtures using a PC and USB interface.  
Stand-alone test function that outputs all 512 channels at a time, with adjustable levels.

Total solder points: 117

Difficulty level: *beginner* 1  2  3  4  5  *advanced*



# K8062

**Features :**

- ☑ This unit can control DMX fixtures using a PC and USB interface
- ☑ Test software and "DMX Light Player" software is included, a DLL is provided to write you own software
- ☑ Furthermore there is a stand-alone test function that outputs all 512 channels at a time, with adjustable levels

**Specifications :**

- Connected and powered through USB
- 512 DMX channels with 256 levels each
- 3 pin XLR—DMX output connector
- Windows 98SE or higher compatible
- DLL included to write your own software
- Optional 9V battery needed for stand alone test mode
- Solid state - fuse protection on DMX output
- Dimensions: 106 x 101 x 44.5mm (4.2" x 4.0" x 1.75")

\*If a DMX terminator is used, you will also need a USB hub (e.g. our PCUSB3)

**Kit includes:**

- Enclosure
- USB cable
- CD with: test software, DLL for own developments, free DMX light player\*

\* If not included, check our website <http://www.velleman.be>

This device complies with Part 15 of the FCC Rules provided the enclosed instructions are followed to the letter. Use of the device is subject to the following conditions: (1) this device must not cause harmful interference and (2) the operation of this device should not be influenced by unwanted interference.

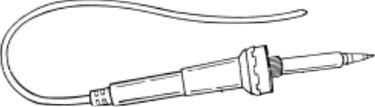
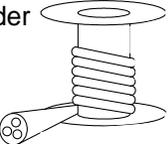
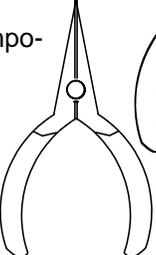
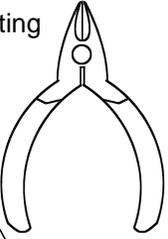
More information about FCC can be look at <http://www.fcc.gov>



## 1. Assembly (Skipping this can lead to troubles !)

Ok, so we have your attention. These hints will help you to make this project successful. Read them carefully.

### 1.1 Make sure you have the right tools:

- A good quality soldering iron (25-40W) with a small tip. 
- Wipe it often on a wet sponge or cloth, to keep it clean; then apply solder to the tip, to give it a wet look. This is called 'thinning' and will protect the tip, and enables you to make good connections. When solder rolls off the tip, it needs cleaning.
- Thin raisin-core solder. Do not use any flux or grease. 
- A diagonal cutter to trim excess wires. To avoid injury when cutting excess leads, hold the lead so they cannot fly towards the eyes.
- Needle nose pliers, for bending leads, or to hold components in place. 
- Small blade and Phillips screwdrivers. A basic range is fine. 



**For some projects, a basic multi-meter is required, or might be handy**



### 1.2 Assembly Hints :

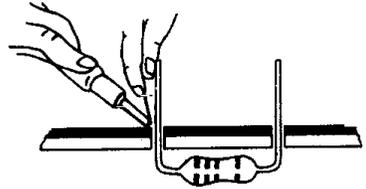
- ⇒ Make sure the skill level matches your experience, to avoid disappointments.
- ⇒ Follow the instructions carefully. Read and understand the entire step before you perform each operation.
- ⇒ Perform the assembly in the correct order as stated in this manual
- ⇒ Position all parts on the PCB (Printed Circuit Board) as shown on the drawings.
- ⇒ Values on the circuit diagram are subject to changes.
- ⇒ Values in this assembly guide are correct\*

- ⇒ Use the check-boxes to mark your progress.
- ⇒ Please read the included information on safety and customer service

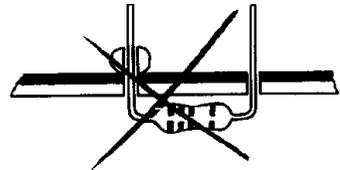
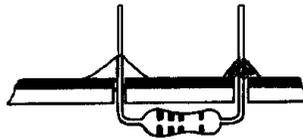
\* Typographical inaccuracies excluded. Always look for possible last minute manual updates, indicated as 'NOTE' on a separate leaflet.

### 1.3 Soldering Hints :

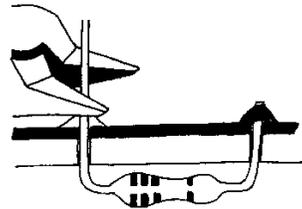
1- Mount the component against the PCB surface and carefully solder the leads



2- Make sure the solder joints are cone-shaped and shiny

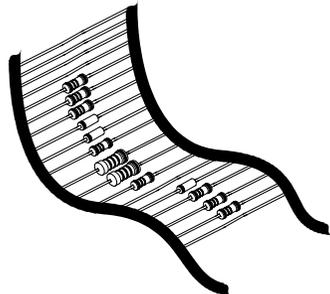


3- Trim excess leads as close as possible to the solder joint



**AXIAL COMPONENTS ARE TAPED IN THE CORRECT MOUNTING SEQUENCE !**

REMOVE THEM FROM THE TAPE ONE AT A TIME !



 You will find the colour code for the resistances on our website: <http://www.velleman.be/common/service.aspx>

### 1. Diode (check the polarity)

CATHODE

D...

- D1 : 1N4148

### 2. Zener diodes (check the polarity)

CATHODE

ZD...

- ZD1 : 6,2V (6V2)
- ZD2 : 6,2V (6V2)

### 3. 1/4W Resistors.

R...

- R1 : 10K (1 - 0 - 3 - B)
- R2 : 10K (1 - 0 - 3 - B)
- R3 : 1K5 (1 - 5 - 2 - B)
- R4 : 470 (4 - 7 - 1 - B)
- R5 : 1K5 (1 - 5 - 2 - B)
- R6 : 1K5 (1 - 5 - 2 - B)
- R7 : 2K2 (2 - 2 - 2 - B)
- R8 : 470 (4 - 7 - 1 - B)

☞ R9 will not be mounted

### 4. IC sockets

IC...

- IC1 : 8P
- IC2 : 28P

### 5. Capacitors

C...

- C1 : 33pF (33)
- C2 : 33pF (33)
- C3 : 100n (104, 0.1, u1)
- C4 : 100n (104, 0.1, u1)
- C5 : 100n (104, 0.1, u1)
- C6 : 100n (104, 0.1, u1)
- C7 : 220n (224)

### 6. Transistors

T...

- T1 : BC327
- T2 : BC337

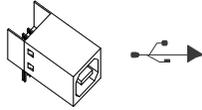
### 7. Voltage regulator.

VR...

- VR1: UA78L05

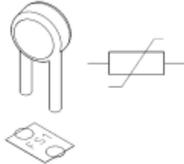
### 8. USB connector

- SK4 : USBB90



### 9. Polyswitch resettable fuses

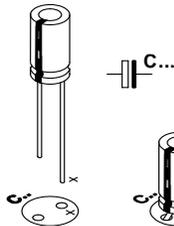
- FS1 : 3A /60Vdc
- FS2 : 3A/60Vdc



The PTC resistor resets automatically and protects your circuit permanently.

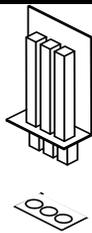
### 10. Electrolytic capacitor. Check the polarity !

- C8 : 4,7µF



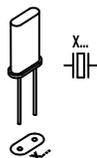
### 11. Header

- SK3 : 3P



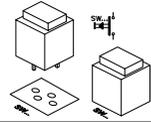
### 12. Quartz crystal

- X1 : 4MHz



### 13. Push button \*

- SW1



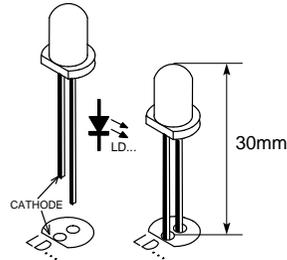
### 14. Battery holder \*

4mm M3 BOLT



Mount the battery clip on the PCB using the 4mm M3 bolt and M3 nut.

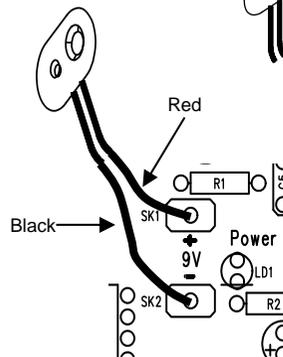
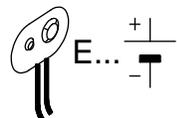
### 15. LEDs. Check the polarity!



- LD1 : 3mm RED 'Power ON'
- LD2 : 3mm RED 'DMX'

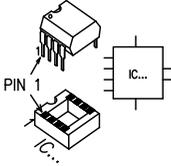
### 16. Battery snap \*

- SK1 : + (Red)
- SK2 : - (Black)

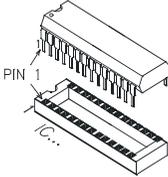


\* **Note** : If stand alone function is not used, do not mount these parts.

**17. IC's check the position !**



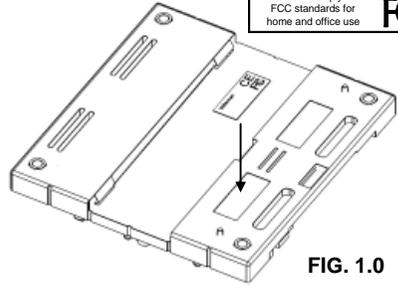
❑ IC1 : SN75176BP or MAX485



❑ IC2 : VK8062 (programmed PIC18F2550)\*

**18. CE/FCC Sticker**

Affix the supplied CE/FCC sticker on the bottom of the housing, see fig. 1.0.



**19. XLR socket.**

Solder the 3-pole female print connector to the XLR connector using the figure below to check the accuracy of the connections (see fig. 2.0 & 3.0).

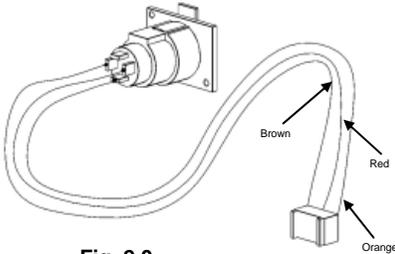


Fig. 2.0

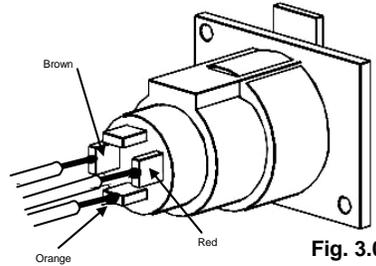


Fig. 3.0

Now mount the female 3-pole XLR connector in the provided opening in the upper part of the housing, securing it with the included selftapping screws (flat head 2.9 x 6.5mm), see figure 4.0.

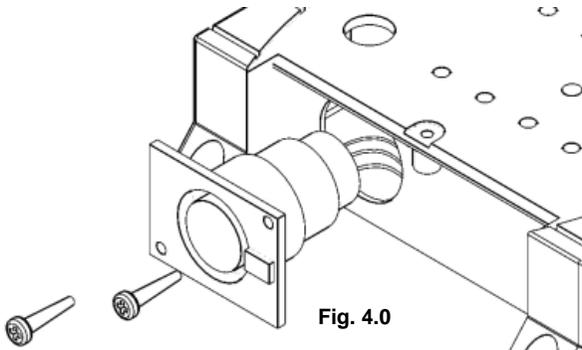


Fig. 4.0

\* firmware rev. 3 or higher

## 20. Assembly

- Fix the PCB using 4 screws ( 2.9 x 6,5mm).
- Connect the wired connector to 3p header (SK3).
- If stand alone function is used, connect the battery to the connector and insert the battery in the battery compartment as indicated in fig. 5.0.
- Close the enclosure with the longest supplied screws (2.9 x 9.5mm).
- Affix the supplied front sticker on the top of the enclosure.

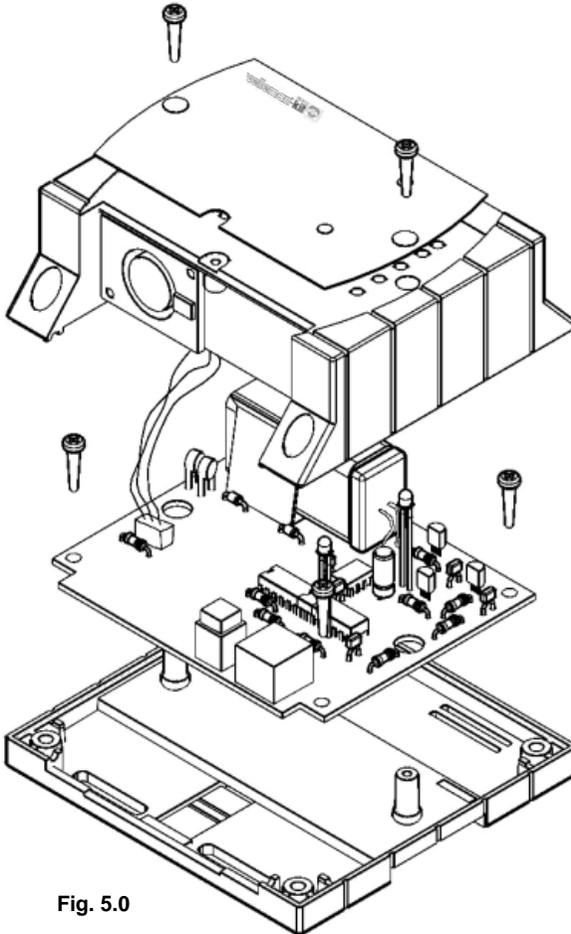


Fig. 5.0

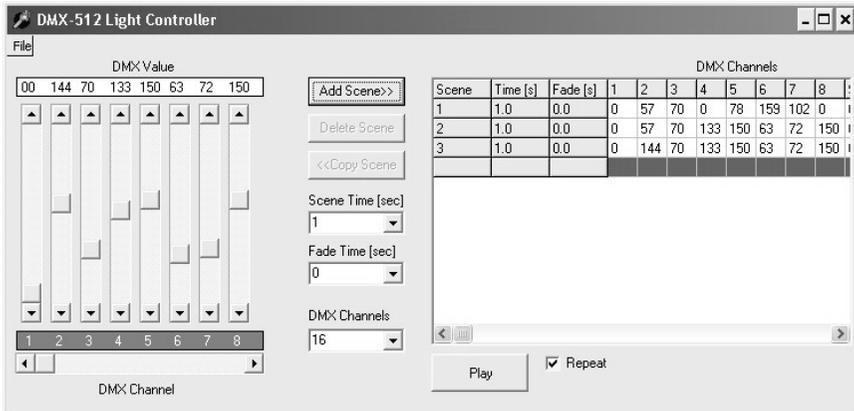


**Remark :** Respect your national and local laws when disposing of empty batteries.

## 21. Software installation

- Browse through the CD and open the K8062 folder.
- Check the appropriate PDF files for further information.

The 'light player' software is installed in the folder by default: c:\program files\DMX



This is a screen shot of the DMX\_demo software, used to test the unit or to make some simple shows.

**You will find the latest version of the software on our website**

## 22. Stand alone test mode

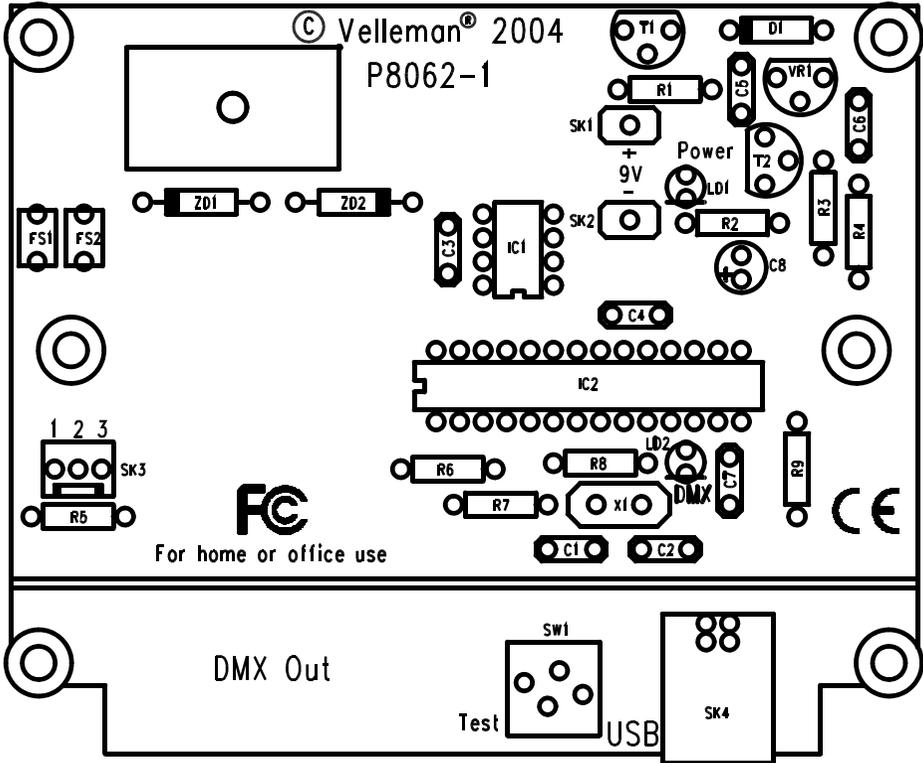
For the stand alone DMX test mode a 9V battery must be connected between the connectors SK1 (+) and SK2 (-).

Test button SW1 is used to control the operation of the test mode.

### Operation :

- Do not connect the unit to the USB cable.
- A short button press turns the unit on. - Power LED goes on and the unit starts to send DMX code "0" on all the 512 DMX channels.
- Next button press increments the code on all the channels to '1', next button press increments to '2' etc.
- The "DMX signal" LED starts to light periodically when the test button is pressed for some times.
- The LED's flashes are longer after pressing the button for several times.
- Pressing the button 256 times the internal counter rolls back to 0 and the unit starts again to send code "0" on all the 512 DMX channels.
- If you use e.g. a dimmer as a test equipment you should see how the intensity of the light increases on every button press.
- To turn the power off, keep pressing the button about 9 seconds until the power LED goes off.

23. PCB







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