Add a visual readout to your existing or new equipment.
Features & Specifications

Features:
- For instant visualization of audio signal levels.
- Easy hook up to a LINE level (LOW input) signal source.
- For use with mixing panels, amplifiers, CD players, radio’s, ...
- A special input (HIGH INPUT) is provided, which allows direct connection to a SPEAKER output.
- DOT or BAR display mode selectable to suit your application.
- Attractive display window supplied, which can be used both horizontal as vertical.
- If wanted, the unit can be calibrated by means of a trim potentiometer.

Specifications:
- 1 X 10 LED’s
- Bar or dot mode.
  - Indication range: 0dB = 0.775mVrms.
    -20dB, -10dB, -7dB, -5dB, -3dB, -1dB, 0dB, +1dB, +2dB, +3dB
- Frequency range: 20Hz to 30KHz
- Low input for 0dB: 150mV to 6Vrms (47K)
- High input for 0dB: 1.5V to 60Vrms (470K).
- Power supply: 10 to 15VDC / 110mA max.
- PCB Dimensions: 68X37mm

NOT SUITED FOR CONNECTION TO HIGH POWER CAR STEREO SYSTEM
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.
Assembly hints

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

REMOVE THEM FROM THE TAPE ONE AT A TIME!

AXIAL COMPONENTS ARE TAPED IN THE CORRECT MOUNTING SEQUENCE!
1. Jumper wires

- J1

- J2, mount for **BAR** mode, do not mount for **DOT** mode.

2. Diodes. Watch the polarity!

- D1 : 1N4148
- D2 : 1N4148

3. Zenerdiode. Watch the polarity!

- ZD1 : 6V2

4. Diode. Watch the polarity!

- D3 : 1N4007

5. Resistors

- R1 : 47K (4 - 7 - 3 - B)
- R2 : 47K (4 - 7 - 3 - B)
- R3 : 330 (3 - 3 - 1 - B)
- R4 : 10K (1 - 0 - 3 - B)
- R5 : 10K (1 - 0 - 3 - B)
- R6 : 2K2 (2 - 2 - 2 - B)
- R7 : 470K (4 - 7 - 4 - B)

6. IC sockets. Watch the position of the notch!

- IC1 : 8p
- IC2 : 18p
7. Capacitors.
- C1 : 220nF (224)
- C2 : 220nF (224)

8. Trim potentiometer
- RV1 : 220K (Sensitivity)

9. Electrolytic Capacitors. Watch the polarity!
- C3 : 47µF
- C4 : 47µF
- C5 : 47µF

10. 1W resistor
- R8 : 68 (6 - 8 - 0 - B )

11. IC's. Watch the polarity!
- IC1 : UA741
- IC2 : LM3916
12. MOUNT THE LEDS (Check the polarity)

Remark: Depending on your application, these LED’s can be mounted perpendicular or parallel (see also points 13 and 14):

- LD1 : green
- LD3 : green
- LD5 : green
- LD7 : green
- LD9 : yellow
- LD2 : green
- LD4 : green
- LD6 : green
- LD8 : yellow
- LD10 : red
13. PARALLEL MOUNTING (optional)

(A) Make the holes in the housing or panel (fig. 1.0):

(B) Mount the suitable spacers (fig. 2.0):
Mount the PCB onto the spacers (fig 3.0):
14. PERPENDICULAR MOUNTING (optional)

(A) Make or search for a suitable bracket:

(B) Make the holes in the housing or panel and mount the bracket (fig. 5.0):
Mount the PCB with spacers onto the bracket (fig. 6.0):
15. CONNECTION TO A SUITABLE SIGNAL

Connecting to a line level output (tuner, preamp, cd player…) and connecting a power supply from 10 to 15VDC / 110mA max.

Connect the unit to a suitable supply voltage between 10VDC and 15VDC, this can also be a standard DC adapter. You can also build your own power supply, see diagram. Use a 2x12V transformer, two rectifier diodes and a electrolytic capacitor or use a single 12V transformer with a bridge rectifier and a electrolytic capacitor.

![Diagram of power supply connections](image)

Fig. 7.0
16. CONNECTION TO A SPEAKER OUTPUT

Connecting to a speaker level output and connecting a power supply from 10 to 15VDC / 110mA max.

Connect the unit to a suitable supply voltage between 10VDC and 15VDC, this can also be a standard DC adapter. You can also build your own power supply, see diagram. Use a 2x12V transformer, two rectifier diodes and a electrolytic capacitor or use a single 12V transformer with a bridge rectifier and a electrolytic capacitor.
17. CONNECTION TO A CAR RADIO

Connecting to a speaker output from a regular car radio.

The 12VDC car battery power or car radio antenna output can be used to supply the VU meter.

**REMARK:** Do not connect the unit to a high power car booster or car stereo, this equipment uses isolated ground connection. The connection to this kind of amplifier can cause permanent damage to the amplifier or car radio!

*Adjust the units sensitivity according to your preference by means of the trim potentiometer RV1*
PCB LAYOUT

PCB & Diagram

LOW IN
C1 220n
R1 47K
RV1 220K
R2 47K
UA741 IC1
+V 2 3
4 7
6 5
D1 1N4148
D2 1N4148
R3 330
R4 10K
C3 47u
R5 10K
ADJ
R6 2K2
J1 DOT/BAR
+V
V+
V−
LD2 GREEN
-10dB
LD3 GREEN
-7dB
LD4 GREEN
-5dB
LD5 GREEN
-3dB
LD6 GREEN
-1dB
LD7 GREEN
0dB
LD8 YELLOW
+1dB
LD9 YELLOW
+2dB
LD10 RED
+3dB
J1 CLOSED = BAR MODE
J1 OPEN = DOT MODE
SENSITIVITY
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DIAGRAM

modifications reserved

PCB & Diagram

10...15VDC
R8 68/1W
GND
D3 1N4007
C2 220n
C5 47u
R7 470K
R8 68/1W
GND
D3 1N4007
C2 220n
C5 47u
R7 470K
SENSITIVITY
+V
D1
D2
R2
47K (30u-47K)
GND
D1
D2
R2
47K (30u-47K)
GND
D1
D2
R2
47K (30u-47K)
GND
D1
D2
R2
47K (30u-47K)
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47K (30u-47K)
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R2
47K (30u-47K)
GND
D1
D2
R2
47K (30u-47K)