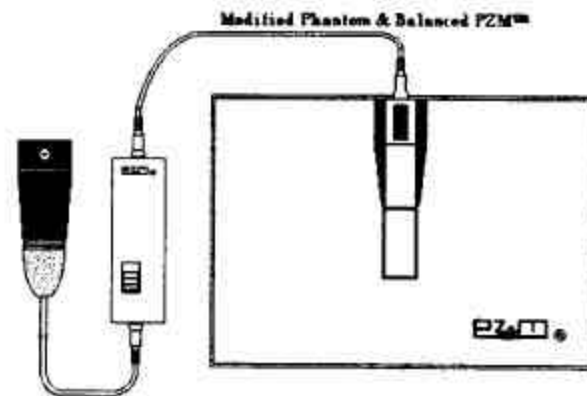


The following is from an article written by Simon Leadly and found in an Australian Magazine called SONICS.

## PZM MOD

Tandy Electronics sell a cheap version of the Crown PZM microphone - the Realistic - that is ideal for the home recordist and professional alike.. The only problem is the unit is powered by a single 1.5 volt battery (and therefore has a limited dynamic range), and is supplied in an unbalanced form. Both these limitations can be overcome with some simple modifications.



### Unbalanced to balanced mod:

In order to eliminate 'induced hum and noise' balanced cables connected to common mode rejection circuitry provide excellent performance. (Most mixers with mic inputs are balanced either electronically or with transformers).

To modify the mic to balanced operation simply cut off the jack and fit a three-pin male XLR connector. The red wire goes to pin 3 (hot), the black to pin 2 (return) and the screen to pin 1 (ground). Any easier and you wouldn't believe me!

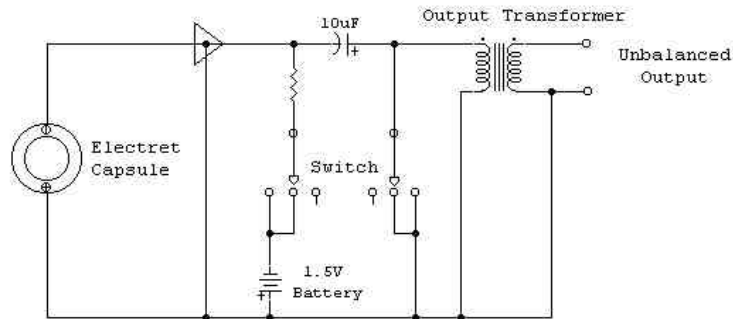
### Phantom power mod:

In order to improve the dynamic range, we need a source of higher voltage. Tandy recommend that you use two six-volt batteries that fit into the battery compartment to improve the headroom when wide dynamic range is encountered.

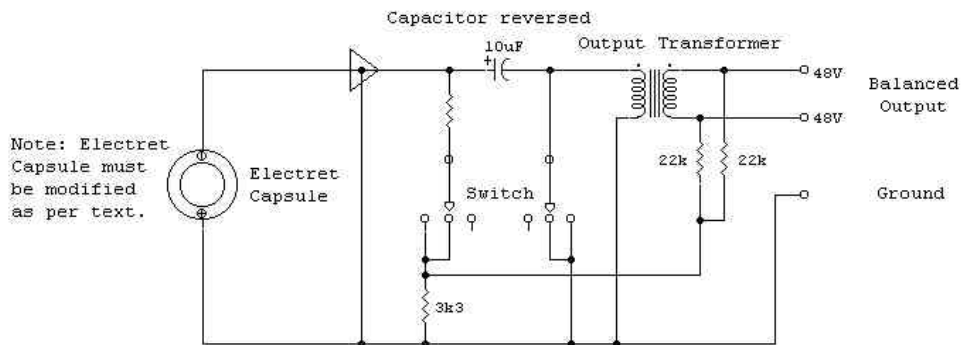
In some mixing consoles there is just such a supply voltage provided in the form of phantom power. The 48 Volt power is applied equally to the Hot and Return pins of the XLR connector. And this is referenced to the ground line (pin 1). Because the 48V is supplied equally to these pins, no voltage will flow through the transformer at the mic end. We can simply 'pick' off this voltage and supply it to the PZM circuitry.

If you haven't done the balanced output mod, do it now. Then we need to reverse the polarity of the circuit operation. As it stands, the PZM is configured for positive earth operation. To change this, the polarised capacitor needs to be reversed, and the Electret capsul has to be swapped around.

Remove the single PCB from the battery case by, removing the screws and then gaining access to the board by bending the metal cover up. The 10uF capacitor is the largest component on the board. Remove it and replace it the other way round. Then swap the leads going to the battery terminals so that red comes from the +ve terminal and the black from the -ve terminal. At this point the 3.3k resistor can be soldered across the battery terminals.



**Unmodified PZM**



Note: Electret Capsule must be modified as per text.

Resistor soldered across battery terminals.

**Modified Phantom & Balanced PZM**

If you do this along the side of the case you can still operate the unit with batteries if necessary. Remove the capsule plate from the boundary plate and remove the Electret insert and its associated circuit board. After removing the insert itself you need to cut the connection between the metal case and the black wire's terminal (do this very carefully!), then solder a small strand of wire to the case from the red wire's terminal. Replace the insert and place the battery in the case to check that the unit functions.

All that is left to do is place the 22k resistors from the transformer outputs to the +ve battery connection. (The transformer outputs are the signal wire outputs).

Reassemble the battery compartment and connect the mic to the desk ensuring that the phantom power is enabled (most desks allow you to select which channel has power applied to it).

If you have a multimeter you should be able to measure between 10 and 12 V at the battery terminals with phantom power applied. If not, check everything and try again.

### Parts List:

- 2 - 22k ohm Res 1/4 Watt;
- 1 - 3.3k ohm Res 1/4 Watt;
- 1 - male XLR connector.