

# Electro-Resales LLC

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## Switched Range Crystal Calibrator/Marker Generator 25 KHz, 50 KHz, 100 KHz, 1 MHz

### Background

Our 100,50,25 KHz calibrator has proven very popular, in part due to its ability to be powered from a DC voltage source, or from an AC source of around 6.3 VAC, typically available from the heater chain of tube (Valve) radio and test equipment. One drawback with this design has been the lack of a 1MHz signal being easily available on the output jack (it's on a couple of test pads, but not the output jack).

This new version updates the design to allow the 1MHz signal to be available along with the 100/50/25 KHz signals. Additionally the output signal is now selected by means of an integral slide switch, which has proven a significant update over the original pin header arrangement.

Other features of the earlier design have been retained which includes the output signal attenuator, dual power source options and the use of a block oscillator as the source signal generator.

### Initial setup and first use

We recommend reading this section while reviewing the photograph of the calibrator on the next page.

As the unit is supplied as a 'bare' PCB component connections are exposed on the underside of the PCB and can be shorted, we recommend attaching spacers using the supplied 4/40 holes to raise the PCB above the surface.

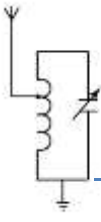
The first decision is whether to power the unit using a DC input voltage or an AC voltage, this is generally dictated by the use the calibrator will be put to. Users who want to add this unit to a tube radio will find using AC volts more convenient, while those looking to use the unit in a more general bench environment will likely use a DC voltage.

The AC volts are applied to the screw terminal block, while the DC volts can be applied to the 2.1mm barrel jack.

**PLEASE NOTE: Only apply DC or AC volts not both together!**

After application of power the selected signal frequency is available at the RCA jack. The signal level has been factory set to around 5V Peak, however, this can be reduced by means of the





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Attenuator pot. We recommend leaving this at the factory setting; if adjustment is required the use of an oscilloscope to monitor the output level will make adjustments easier.

Use of a quality cable is desired to connect the calibrator, we recommend using a BNC-BNC cable with a BNC/Phono adapter, we have found that cheap RCA hook-up cables to give 'odd' results and spurious issues in use.

Adjusting the output frequency is easy, as the provided slide switch makes selection simple (certainly compared to the header/shunt arrangement). Each output is available at one switch position in descending frequency. The 1MHz position is the one closest to the output jack, while the 25 KHz position is on the opposite end.

**PLEASE NOTE:** The switch is a solid component, but excess force or rapid changes to its position will lead to early failure of this part.

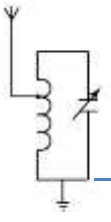
The next photograph shows the selector switch in close-up, along with a photograph of the power jacks (DC Barrel jack and AC screw terminals).

Pages 3&4 have the actual outputs as taken from 'scope traces. Pages 5&6 have the frequency accuracy as recorded on an HP 5335A.

## Troubleshooting

This calibrator has been designed and built to give a long and trouble free life, however, issues can arise. Always check your power source and cables before suspecting the calibrator. If the problem(s) persist please contact us at :

[steve@electroresales.com](mailto:steve@electroresales.com)



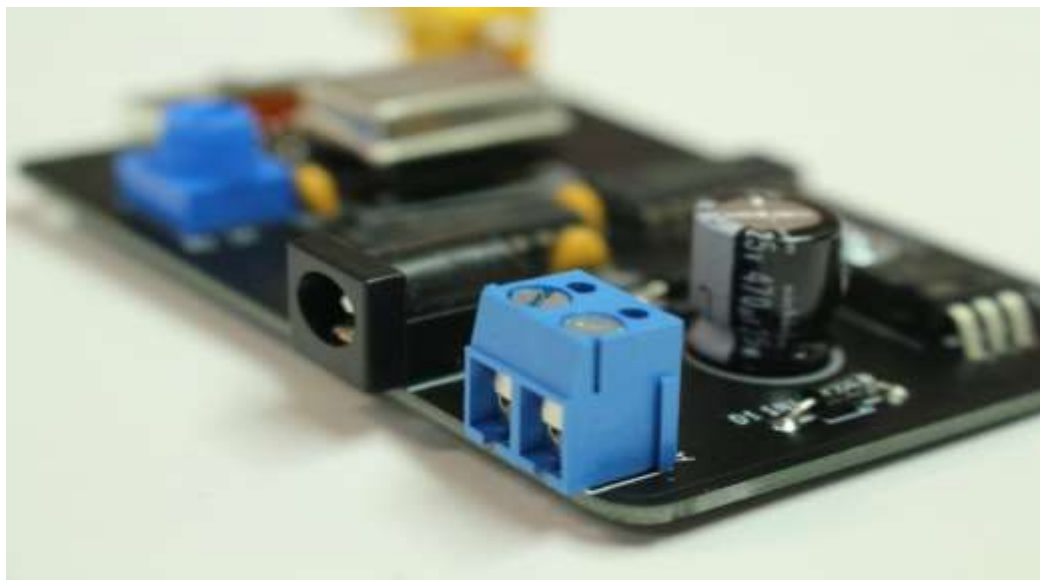
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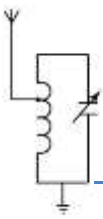
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**Selector Switch and Output Jack - Switch in the 1 MHz position**



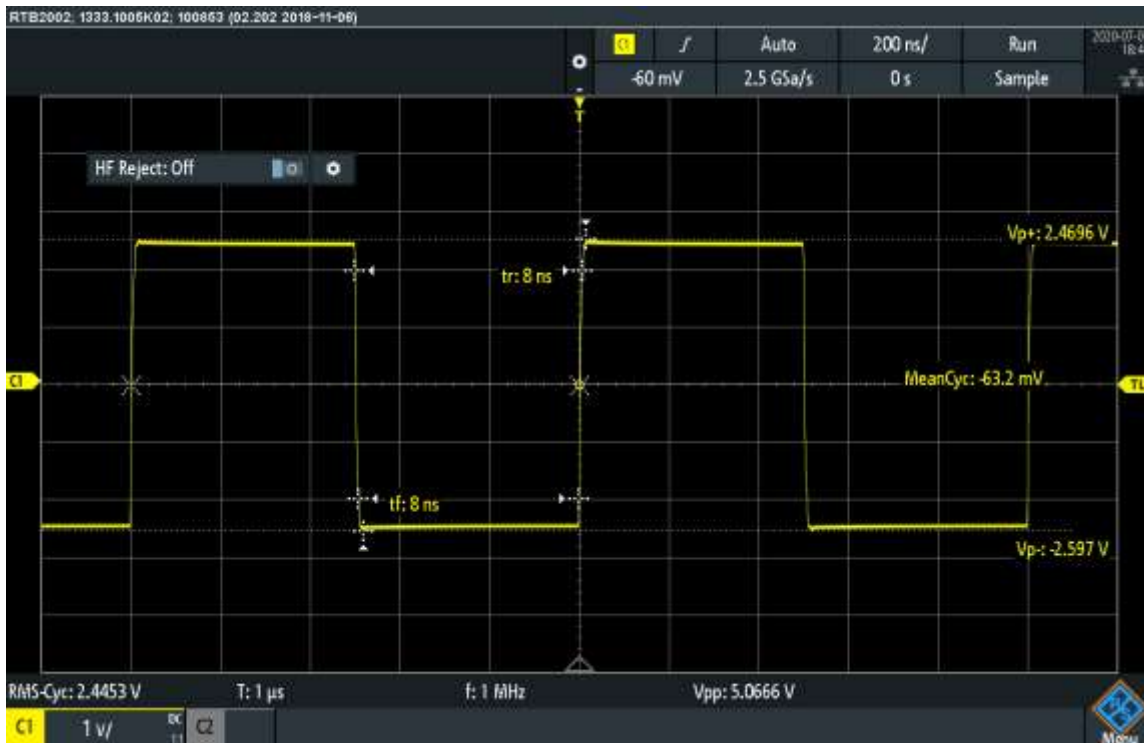
**DC & AC Power jack details**





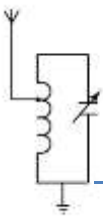
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## 1 MHz Trace



## 100 KHz Trace





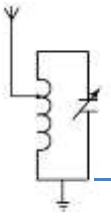
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## 50 KHz Trace



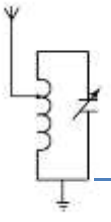
## 25 KHz Trace





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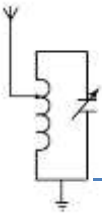




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## The small Print

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### **DISCLAIMER**

**Any person who constructs or works on electronic equipment may be exposed to hazards, including physical injury, the risk of electric shock or electrocution.. These hazards can result in health problems, injury, or death. Only qualified persons who understand and are willing to bear these risks themselves should attempt the construction of electronic equipment. By purchasing this item, the buyer acknowledges these risks.**

**There is a risk of electric shock, electrocution, burns, or fires that is inherent in the construction and use of electronic equipment. By purchasing this item, the buyer acknowledges these risks.**

**IN NO EVENT SHALL THE SELLER BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY NATURE including, but not limited to, property damage, personal injury, death or legal expenses. Buyer's recovery from Seller for any claim shall not exceed the purchase price paid by Buyer for the goods, irrespective of the nature of the claim, whether in warrant, contract or otherwise.**

**By purchasing this item, BUYER AGREES TO INDEMNIFY, DEFEND AND HOLD SELLER HARMLESS FROM ANY CLAIMS BROUGHT BY ANY PARTY REGARDING ITEMS SUPPLIED BY SELLER AND INCORPORATED INTO THE BUYER'S PRODUCT.**