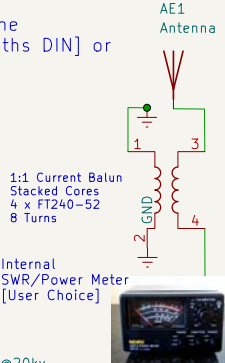


Switch Position 1: Low-Z Uncompensated
 Switch Position 2: Low-Z Compensated
 Switch Position 3: BYPASS
 Switch Position 4: Hi-Z Compensated
 Switch Position 5: Hi-Z Uncompensated

1:1 Current Balun is optional
 An additional SPDT relay can be included at the output to switch between a coax output [7/16ths DIN] or balanced line terminals.
 An [optional] 50ohm dummy load is included

NOTES:
 The choice of relays is down to the builder.
 Better relays = more power handling. The same applies to the rotary switches
 Maintain RF links with 50ohm coax wherever possible thus reducing impedance bumps
 I'm using B2B Russian Military Vacuum Relays for K1 to K4 produced in the cold-war era.
 Official rating is 15A/5Kv@32MHz key down. They are still around for about \$30 a piece.
 In reality, they will do 50% more [Tested at Los Alamos - USA] back in the 80's
 This build as it stands is good for a 7.5kw PEP Tuner on 10m and around 10kw at 40m and below.
 Build Cost: Around £800 upwards depending on components used



Notes:
 Relays K1 and 2 Pins 14/14 link with RG393 Teflon or equivalent QRO Coax.
 Keep coax earth leads as short as possible.
 Earth at nearest point to the relays.
 Values of C7 and C8 may be experimental.
 Test on 50ohm dummy load on bypass mode and experiment with values to obtain best 1:1 SWR

K1 to K4 can be changed for any RF relay config of your choice. For example, the original design included Jennings RF1J SPDT relays but these have lower power handling, particularly at higher HF. Additionally, power handling will also be dependent on the type of rotary switches used and their configuration.

'L' tuners are much more efficient with lower losses than commonly available 'T' Matches

An 'L' tuner for the HF ham radio bands [160-10m] based on an original design by K7SFN. The design has been updated by Steve [G0UIH] and the original relays replaced using Russian B2B-1B's. The original version was quoted to handle 5kw. With the updated relays, the power handling should be closer to 7.5kw PEP @ 28MHz and 10kw at 40m and lower although the rotary switch type/config will also be a critical limiting factor.

Sheet:	
File: 7kw L Tuner.kicad_sch	
Title: 160-10m 'L' Tuner based around an original design by Frank J Dziurda K7SFN	
Size: A4	Date: March 2023
KiCad E.D.A. kicad 7.0.1	Rev: 1.0.0
Id: 1/1	