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SUT 1k LF-6, STEP-DOWN/STEP-UP TRANSFORMERS FOR IMPEDANCE MATCHING

Most of RF Power Sources are designed and optimized to best deliver power into an impedance of 50 Ohms. In a power delivering system where the source and load impedance differs by more than 2:1 a matching element can improve efficiency.

T&C offers a range of LF Band matching transformers for high (and low) impedance load applications.

The table below presents some standard impedance ratios offers by T&C.

CASE OPTIONS:

1. W 8.3" x L 10" x H 3.5" (211mm x 356mm x 89mm). B style gray box from Lansing Instruments, 1 side vented.
2. Custom sizes and configurations on request.
3. Connectors: "N" type Input, Output custom made

SPECIFICATIONS

Step down matching. ($Z_{in} = 50$ Ohms) Frequency Range 0.02 MHz to 0.5 MHz minimum.

Z_p IN	Z_s OUT On A and B terminals	Impedance ratio	Max P IN (Without cooling)
IN 5 = 50 ohms	1.4 (+/- 20%) Ohms	1 : 36	1000 W
IN 4 = 50 ohms	2 (+/- 20%) Ohms	1 : 25	1000 W
IN 3 = 50 ohms	3 (+/- 20%) Ohms	1 : 16	1000 W
IN 2 = 50 ohms	5.6 (+/- 20%) Ohms	1 : 9	1000 W
IN 1 = 50 ohms	12.5 (+/- 20%) Ohms	1 : 4	1000 W

Step up matching. ($Z_{in} = 50$ Ohms) Frequency Range 0.02 MHz to 0.5 MHz minimum.

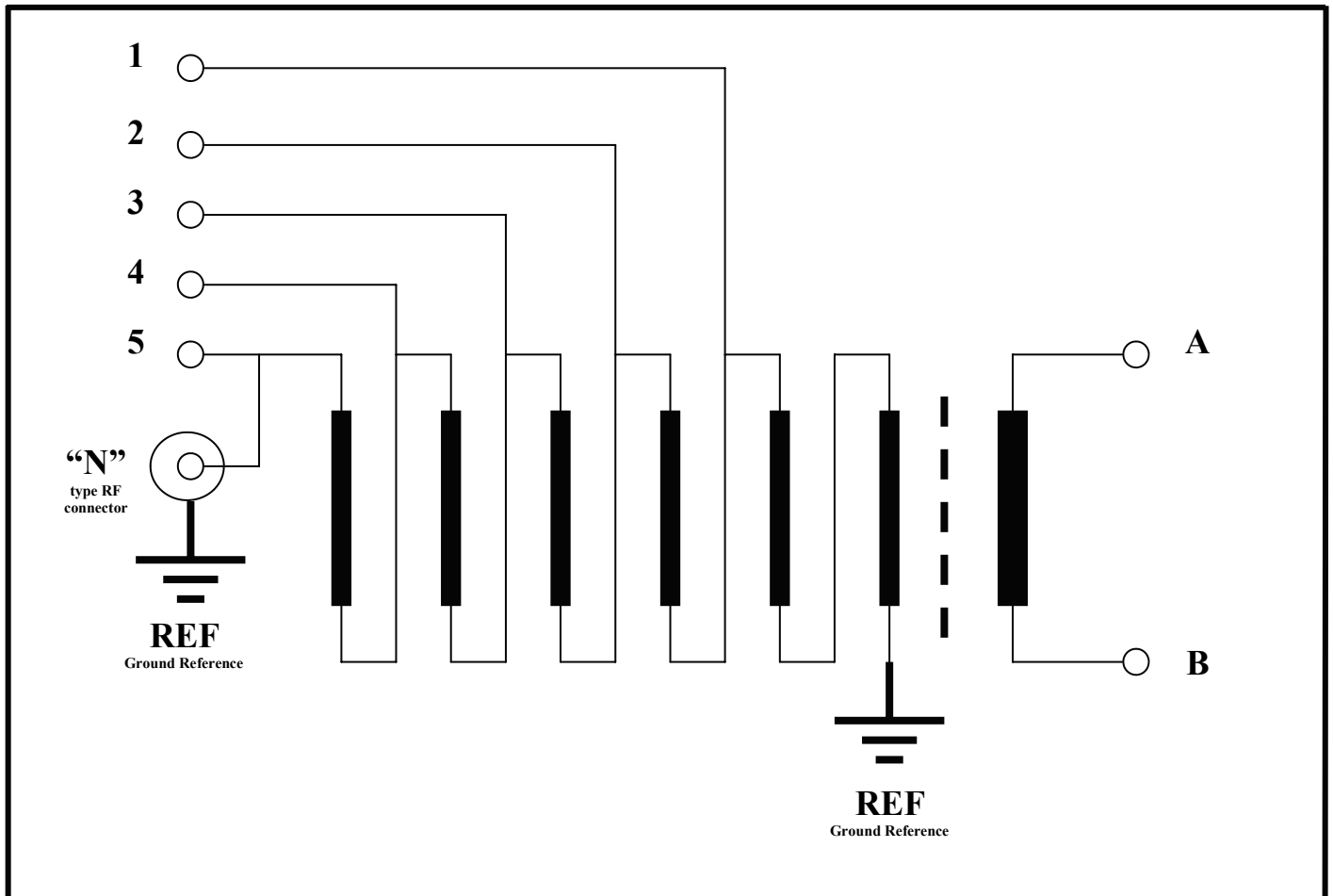
Z_p IN On A and B terminals	Z_s OUT	Impedance ratio	Max P IN (Without cooling)
IN A/B = 50 ohms	1800 (+/- 20%) Ohms (OUT: 5 and REF)	36 : 1	1000 W
IN A/B = 50 ohms	1250 (+/- 20%) Ohms (OUT: 4 and REF)	25 : 1	1000 W
IN A/B = 50 ohms	800 (+/- 20%) Ohms (OUT: 3 and REF)	16 : 1	1000 W
IN A/B = 50 ohms	450 (+/- 20%) Ohms (OUT: 2 and REF)	9 : 1	1000 W
IN A/B = 50 ohms	200 (+/- 20%) Ohms (OUT: 1 and REF)	4 : 1	1000 W





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TRANSFORMER INTERCONNECTION DIAGRAM



Examples of impedance matching:

If amplifier's output connected to:

- "N" type or IN 5, $N_p = 6, N_s = 1, Z_p = [N_s/N_p]^2 \times 50 \text{ Ohm} = \sim 1.4 \text{ Ohm (+/- 20\%)}$
- IN 4, $N_p = 5, N_s = 1, Z_p = [N_s/N_p]^2 \times 50 \text{ Ohm} = \sim 2 \text{ Ohm (+/- 20\%)}$
- IN 3, $N_p = 4, N_s = 1, Z_p = [N_s/N_p]^2 \times 50 \text{ Ohm} = \sim 3.1 \text{ Ohm (+/- 20\%)}$
- IN 2, $N_p = 3, N_s = 1, Z_p = [N_s/N_p]^2 \times 50 \text{ Ohm} = \sim 5.6 \text{ Ohm (+/- 20\%)}$
- IN 1, $N_p = 2, N_s = 1, Z_p = [N_s/N_p]^2 \times 50 \text{ Ohm} = \sim 12.5 \text{ Ohm (+/- 20\%)}$

If amplifier's output connected to:

- IN A/B, $N_p = 1, N_s = 6, Z_p = [N_s/N_p]^2 \times 50 \text{ Ohm} = \sim 1800 \text{ Ohm (+/- 20\%)}$
- IN A/B, $N_p = 1, N_s = 5, Z_p = [N_s/N_p]^2 \times 50 \text{ Ohm} = \sim 1250 \text{ Ohm (+/- 20\%)}$
- IN A/B, $N_p = 1, N_s = 4, Z_p = [N_s/N_p]^2 \times 50 \text{ Ohm} = \sim 800 \text{ Ohm (+/- 20\%)}$
- IN A/B, $N_p = 1, N_s = 3, Z_p = [N_s/N_p]^2 \times 50 \text{ Ohm} = \sim 450 \text{ Ohm (+/- 20\%)}$
- IN A/B, $N_p = 1, N_s = 2, Z_p = [N_s/N_p]^2 \times 50 \text{ Ohm} = \sim 200 \text{ Ohm (+/- 20\%)}$

Some other possible impedance combinations in autotransformer arrangement.

If amplifier's output connected to:

- "N" type or IN 5, $N_p = 6, N_s = 5$ (Terminal 4), $Z_p = [N_s/N_p]^2 \times 50 \text{ Ohm} = \sim 35 \text{ Ohm (+/- 20\%)}$
- "N" type or IN 5, $N_p = 6, N_s = 4$ (Terminal 3), $Z_p = [N_s/N_p]^2 \times 50 \text{ Ohm} = \sim 22 \text{ Ohm (+/- 20\%)}$
- "N" type or IN 5, $N_p = 6, N_s = 3$ (Terminal 2), $Z_p = [N_s/N_p]^2 \times 50 \text{ Ohm} = 12.5 \text{ Ohm (+/- 20\%)}$
- "N" type or IN 5, $N_p = 6, N_s = 2$ (Terminal 1), $Z_p = [N_s/N_p]^2 \times 50 \text{ Ohm} = \sim 5.6 \text{ Ohm (+/- 20\%)}$

