Exact Formula for Series Resistor

Series Resistor (Rs) = (FS x Rk) - 1600

    FS = Full Scale current in mA

    Rk = Kathode Resistor

Example for AD1: 100mA Meter
    100mA Meter
    Rk = 750 Ohms

Series Resistor (Rs) = (100 x 750) - 1600 = 73400 Ohms
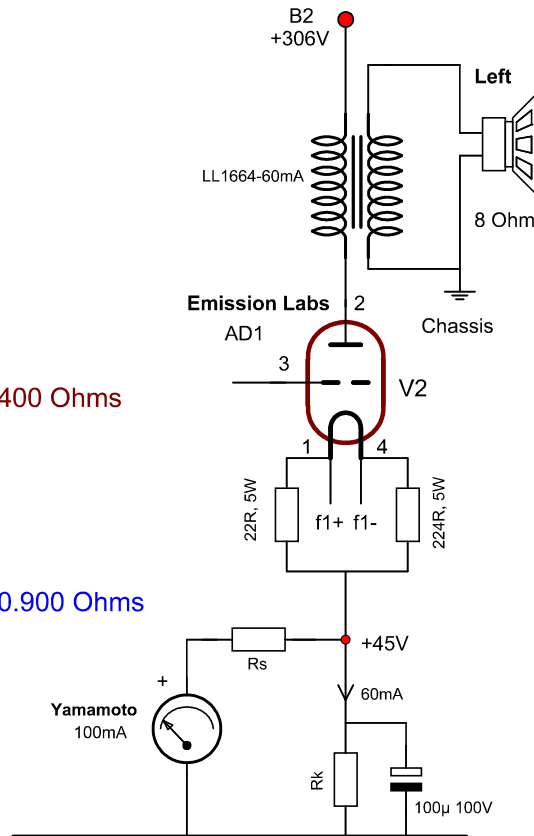

Example for AD1: with 150mA Meter
    150mA Meter
    Rk = 750 Ohms

Series Resistor (Rs) = (150 x 750) - 1600 = 110.900 Ohms

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Minimum DC voltage over cathode resistor must be 1.6 Volt at full scale.

This will no be a problem for all auto bias applications, but it could
be a problem when you are using a "sense" resistor, instead of an
auto bias resistor.

For instance when you have a 150mA meter, and a 1 Ohms sense resistor,
it will not work.   You will also find this from the calculation, as
Rs will become negative. So at 150mA, Rk must be minimum 12 Ohms,
to get 1.8V which is enough. In this case, Rs calculates as
150*12 - 1600 = 200 Ohms. Alternatively you can also leave Rs away,
but then you need to calculate Rk exactly, in this example: 1,6V/0,150mA
= 106,66 Ohms. Such a value is unlogical to buy or to make.

So is better to take the next Higher E-Series value, 12 Ohms, as in the
previous example.

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