

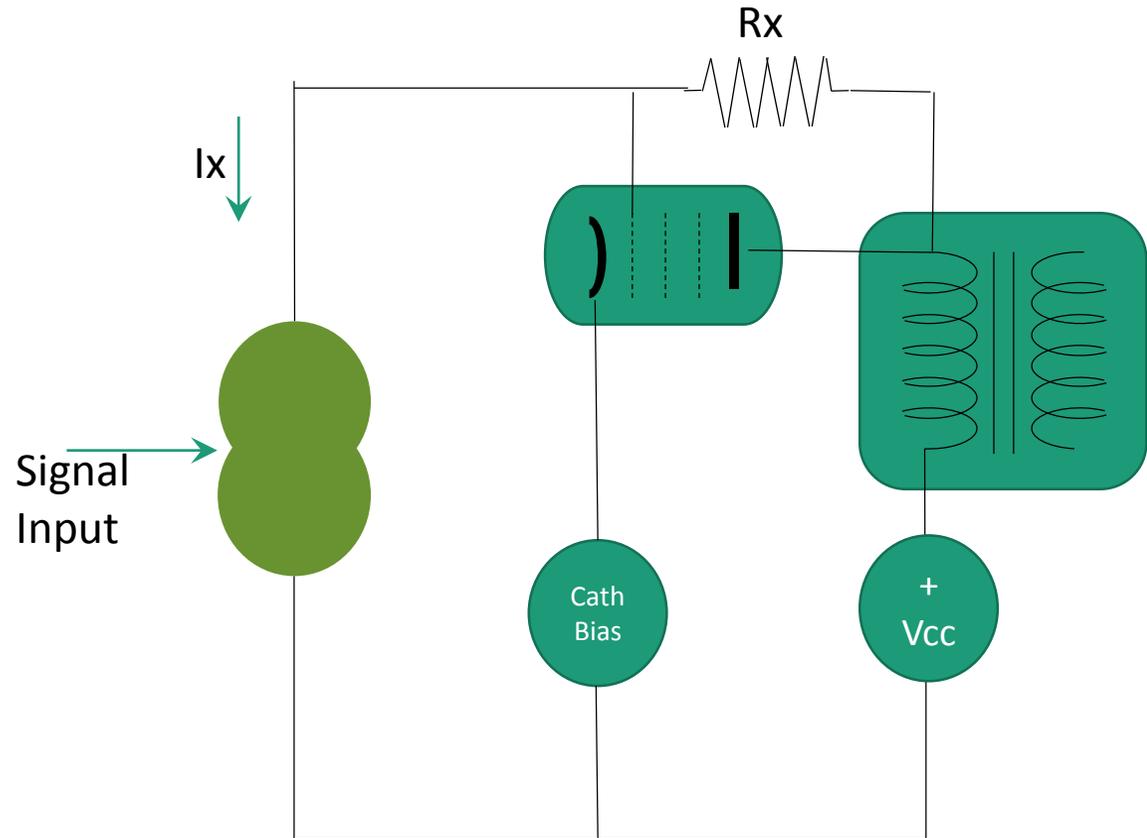
- Vaucottes II -

# The Cuthbert Edition



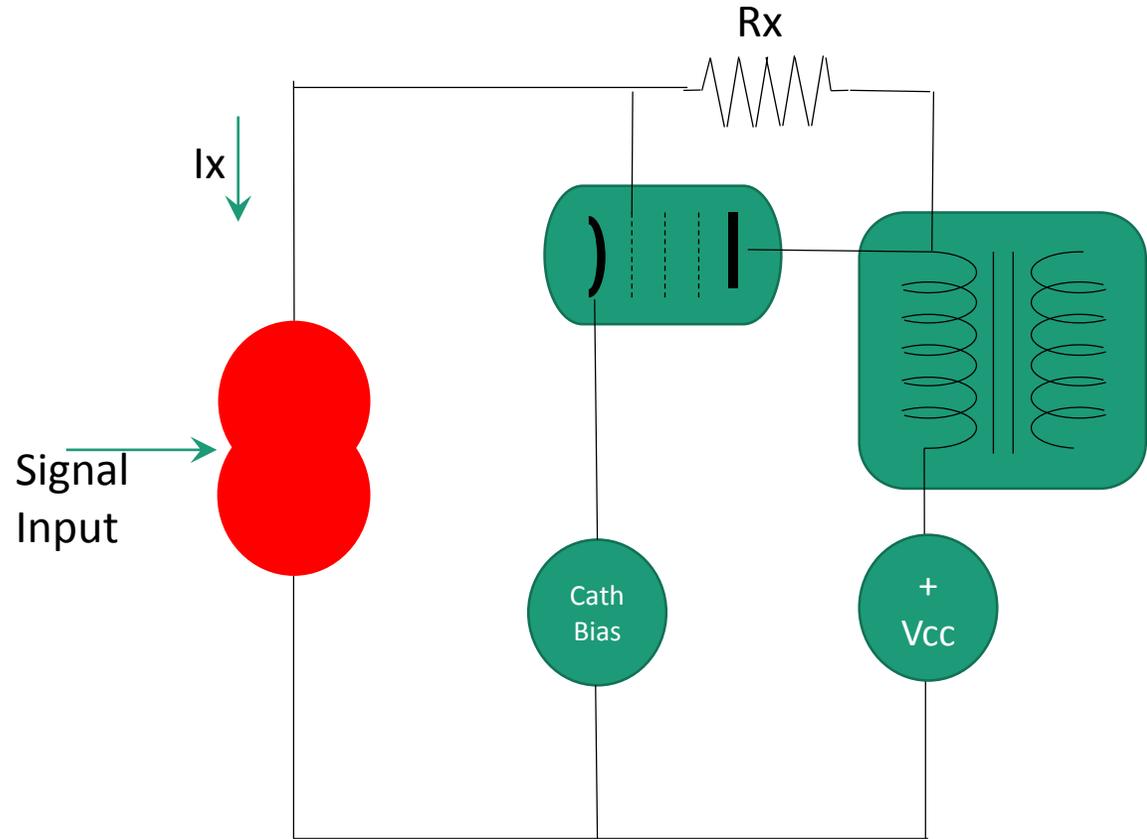
# Bases

- A Trans-X output stage is based on a pentode and must be fed by a current source
- The output voltage is proportional to the current swing  $I_x$  times  $R_x$  !



# The current source must :

- Provide a swing  $I_x$  perfectly proportional to the input signal
- Have an internal resistor as high as possible (> 1 meg)



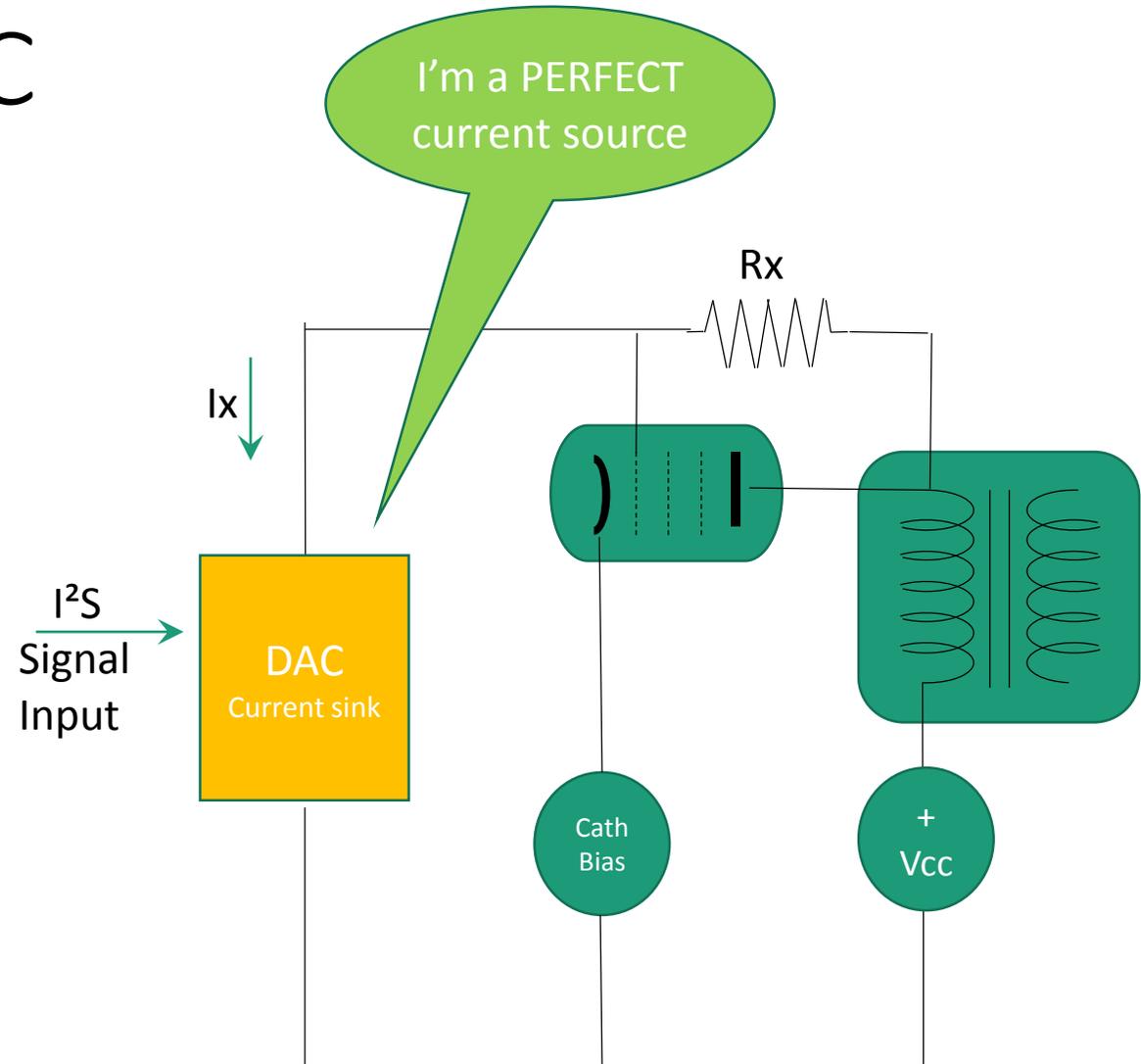
**The Current source defaults reduce dramatically the quality of the output signal**

# The Idea : Use a DAC

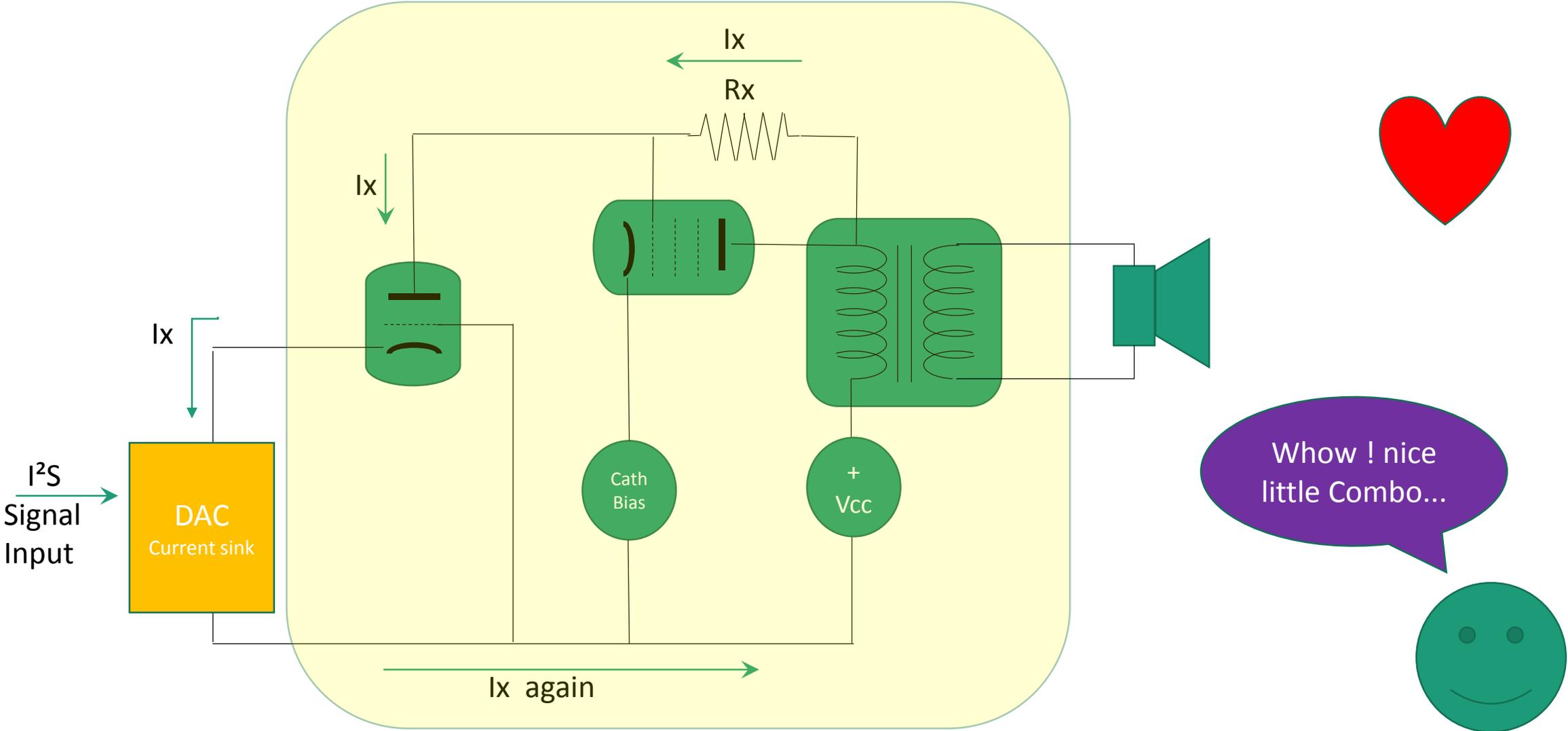
- A DAC with a current output is – almost - a perfect current source

**BUT**

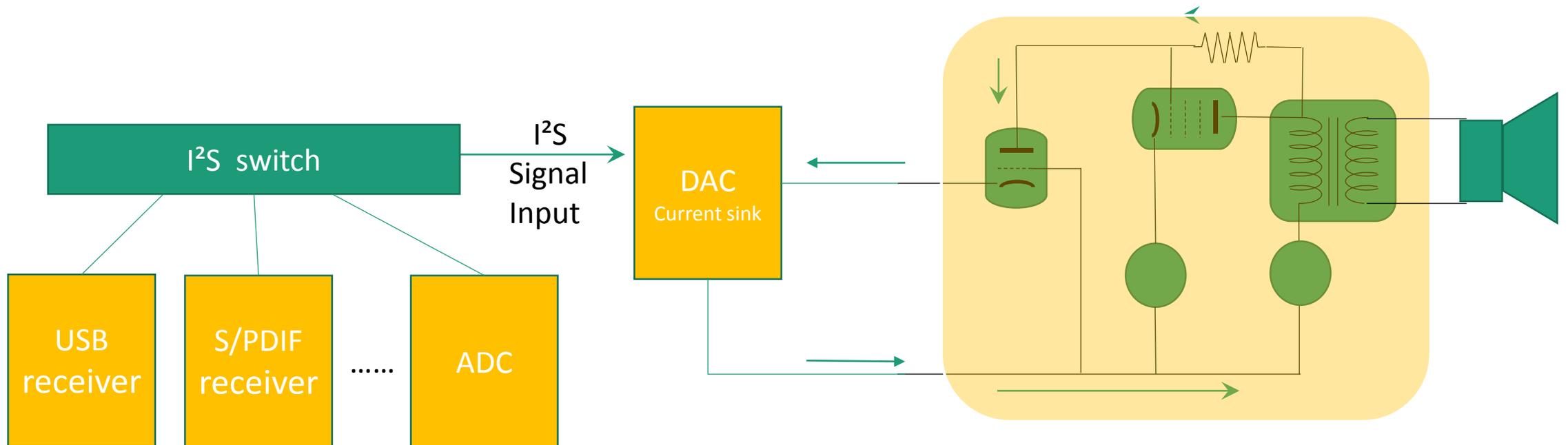
- It will not cope with the large voltage swing of the control grid
- Its internal resistor is not sufficient



# A solution : A nice and easy to use Combo



# The global solution



# Combo's figures corner (Prototype figures)

OUTPUT POWER FOR A  
1.1 MA SWING : 6.25  
WRMS

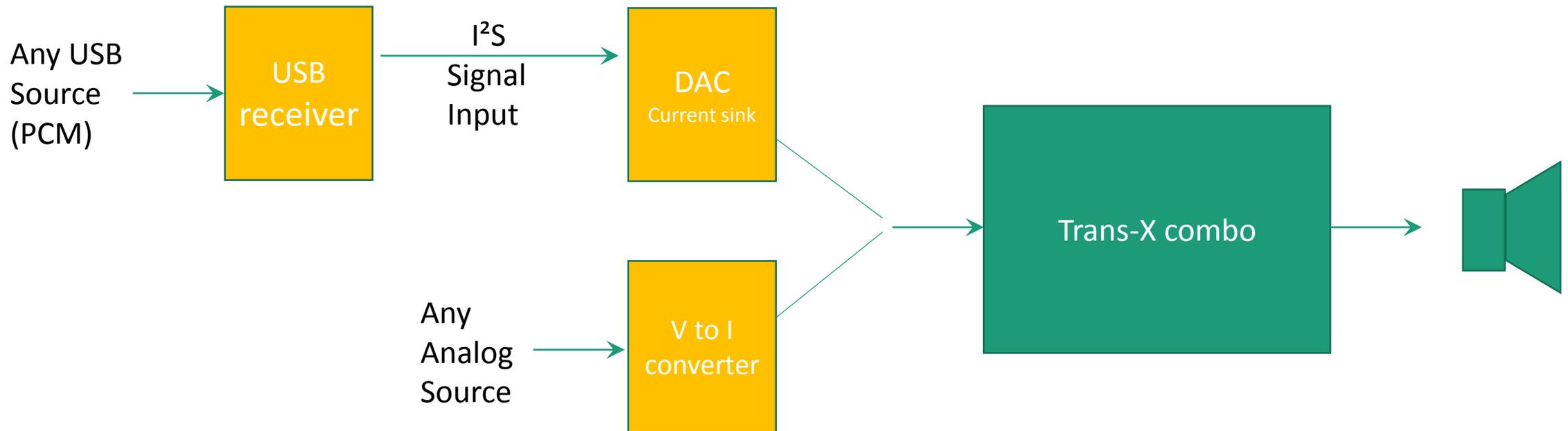
DAMPING FACTOR : 8

INPUT IMPEDANCE : 20  
OHM

MINIMUM PARASITIC  
RESISTANCE OF INPUT  
DEVICE (CURRENT SINK) :  
2 KOHM

# The prototype

## An alternative to support 'vintage' sources



# Advantages

Signal path between the DAC and the speaker is minimized

A simple DAC can drive High Power tubes

The Trans-X advantages :

- Low distortion
- Minimum phase shift
- Very high PSSR
- Very high SNR
- Good damping factor, typically 5 to 10.

# SCHEmATICS

