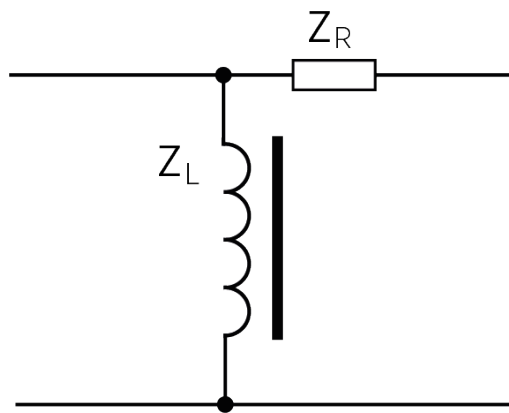# On transformer impedance

A common question we get is "Why can I not find the transformer input and output impedance in your data sheets?"

If you consider a transformer as an electrical gear-box, where the input impedance is proportional to the transformer output load, and the transformer output impedance is proportional to the source impedance, you understand that the input and output impedances are results of the application and are not entities defined by the isolated transformer.

The above does however not mean that any transformer can be used in any application. A very simplified model of a (1:1) transformer consist of two parts, the winding resistive impedance Z_R and the inductive input impedance Z_L.

In line input applications you normally use high impedance transformers (transformers wound with many turns of thin wire), as the transformer inductive impedance Z_L is parallel to the following input circuit impedance.

In (low impedance) line output applications you normally use low impedance transformers (transformers wound with few turns of thick wire) as the winding impedance Z_R of the transformer is in series with the impedance of the line output circuit.

Typical Lundahl line input transformers are LL1531, LL1540, LL1545A

Typical Lundahl line output transformers are LL1517, LL1539, LL5402

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