

Question:

Is there a formula to determine which step-down transformer is right to use for different wattage applications?

Rated VA of the transformer must be greater than the Total VA:

- **Total VA** = (VA of the load) + (Transformer VA Loss)
- **VA of the load** = (Input Watts of LED Driver) ÷ (Power Factor of LED Driver)
- **Input Watts of LED Driver** = (Output Watts of LED Driver) ÷ (Efficiency of LED Driver)
- **Transformer VA Loss** information is published on our data sheet for each model
- LED Driver **Power Factor** and **Efficiency** at Rated Input Voltage is published on the data sheet for each model

Example:

Find the proper Step-down Transformer for a PLED200W series LED Driver @277Vac:

- Driver Efficiency = 93% (0.93) @277Vac (from driver data sheet)
- Input watts of LED Driver = 215W (200W ÷ 0.93 = 215W)
- Power factor of LED Drive = 0.95 @277Vac (from driver data sheet)
- VA of the Load = 226.3VA (215 ÷ 0.95 = 226.3VA)
- Total VA = 236.3VA (226.3 + 10VA, from 245VA transformer data sheet)

Since 236.3 < 245 (Rated VA), TRP 245VA transformer can be used.

Other design considerations include size and input voltage.



Thomas Research Products offers a variety of Step-down Autotransformers to cover different applications:

Connected to 480V input voltage, they produce 277V output voltage.

- F-can style transformers: UL Listed models with 250VA or 375VA ratings. On 347V input, they produce 200V output.
- Traditional style transformers: UL Recognized models with 125VA, 245VA or 460VA ratings. On 347V input, they produce 277V output.

Step-up Transformer are also available:

Connected to 120V input voltage, they produce 277V output voltage.

- Traditional style transformers: UL Recognized models with 275VA or 500VA ratings.