

## PowerPlus™ - Switchmode Power Supply System for ESPs

### Increased Particle Collection Efficiency without Increased Power Consumption

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Switchmode power technology allows electrostatic precipitator suppliers and operators to significantly improve their particle collection efficiency while reducing power consumption.

NWL's PowerPlus is not just an improved T/R set; it is an integrated power supply package encompassing the transformer, controller and ground switches.

PowerPlus is in service on hundreds of precipitators with uniformly excellent results. Switchmode design enables higher average power into the fields, while using less kVA. The benefit to our customers is more dust collection and reduced power consumption.

PowerPlus is designed on a common platform, which greatly improves spare parts and logistics support without sacrificing the custom packaging you've come to expect from NWL.

### PowerPlus Features and Benefits

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- 21, 28, 56, 70, 83, 105, and 120kW models available
- Higher efficiency collection for all particle sizes, especially fine particles
- Reduced power consumption for outstanding project ROI
- Equipment is smaller, lighter, and uses less dielectric fluid
- CE compliant/UL and CSA approved
- Integrated package for easier installation
- Open software architecture enables communication with all major protocols
- Common design platform improves logistics and supply chain support
- NWL's vertically integrated manufacturing ensures higher reliability
- Repair facility and Field Service capability for 'cradle to grave' product support



# PowerPlus & T/R system comparison

Parameter	Power Plus	Conventional T/R system	Explanation of Parameters and their Significance
kVdc	70	55	This is the average value of the output voltage waveform. Maximizing this value increases ESP collection efficiency
mAdc	1000	1000	
Output kW	70	55	
Peak kV	71.8	92.4	This is the maximum value of the output voltage waveform, i.e. it is where arc/sparks occur.
Input Current (AAC)	94	227.1	
# of phases	3	1	
% Ripple (kVp-p)	3-5	35-45	This is the difference between kVdc and peak kV. Minimizing % ripple means a higher kVdc (and better collection efficiency) for a given peak kV.
Power Factor	.94	.63	This is the ratio between real power (kW) to apparent power (kVA). A higher PF means that a lower kVA is required to provide the same kW load. For a utility, this equates to more kVA to feed into the grid.
Input kVA	78.7	92.2	
Operating frequency	25 kHz	60 Hz	This is the frequency (in cycles/sec) of the electrical power being supplied to the main step-up transformer. Higher frequencies translate to smaller transformers and faster control responses.
EMI filter	yes	no	
Arc shutdown time (msec)	0.03	8.33	This is the time required for the power supply to extinguish power when an arc occurs. A shorter shutdown time minimizes the fault current and energy delivered to the precipitator.
Max ambient temp (deg C)	40	40	
Volume envelope (ft <sup>3</sup> )/(m <sup>3</sup> )	24/.68	65/1.84	The smaller footprint and weight of the PowerPlus is a consequence of a much smaller transformer and integrated controls. With larger PowerPlus models, this difference becomes less pronounced.
Plan envelope (ft <sup>3</sup> )/(m <sup>3</sup> )	10/.28	21/.60	
Weight (lb)/(kg)	1000/454	3860/1751	
Oil reservoir (gal)/(liters)	29/110	135/511	