

ModuPower™ MPX

The solution for reducing particulate matter (PM) emissions

- Modularity
- Advanced Cooling Options
- Simplified Maintenance and Repair
- Remote Mounting with HV Cable
- Fixed switching frequency 35kHz
- Large range of output ratings from 50kV to 120kV, 250mA to 7200mA



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The ModuPower™ MPX improves the PM collection efficiency of any electrostatic precipitator by increasing the average power into the process regardless of application.

The ModuPower™ MPX Switch Mode Power Supply (SMPS) utilizes high frequency IGBT switching to reduce secondary voltage ripple in any ESP from 30% to 3% when compared with conventional power supplies. The reduced voltage ripple results in higher average voltages and faster migration velocities. Due to the VI relationship of the ESP a higher average voltage results in higher secondary currents increasing the rate of particle charging. A larger quantity of charged particles and faster collection rate of those charged particles results in a significant increase in the performance of any ESP.

Implementation of ModuPower™ MPX is a standard part of many environmental projects involving:

- Reducing baseline particulate matter (PM) emissions
- Regulatory compliance for emission standards
- Mitigating additional inlet dust loading from DSI and ACI
- Mitigating effects of fuel switching or blending
- Reducing filterable PM emission during transient operating periods (startup, shutdown, boiler load ramp)
- Reducing opacity spikes from soot blowing and rapping
- PM and acid mist collection in wet applications (Wet ESP)



Modularity

The ModuPower™ MPX is comprised of multiple, independently operating modules with their outputs connected in parallel. In the unlikely event of a failure, only one module is affected and the remaining modules continue to operate seamlessly. This significant advancement greatly improves the reliability of the entire power supply and reduces down time as a result of a single component failure. Additionally, modules can inexpensively be added to accommodate future ESP sectionalization.

Advanced cooling options

The ModuPower™ MPX design is state of the art and handles the challenges of adequately cooling heat sensitive power electronics in an industrial environment. Forced cooling of all primary components ensures proper operation during all load conditions. Our single phase, closed loop, and common cooling system designs ensure that each ModuPower™ MPX will operate effectively in a variety of environments.

ModuPower™ MPX

Standard mA rating matrix

| KV | Output current ratings (mA) | | | | | | | |
|-----|-----------------------------|------|------|------|------|------|-------|------|
| | 50 | 66.7 | 75 | 83.3 | 90 | 100 | 112.5 | 120 |
| 30 | 600 | 450 | 400 | 360 | 333 | 300 | 267 | 250 |
| 60 | 1200 | 900 | 800 | 720 | 666 | 600 | 534 | 500 |
| 90 | 1800 | 1350 | 1200 | 1080 | 999 | 900 | 801 | 750 |
| 120 | 2400 | 1800 | 1600 | 1440 | 1332 | 1200 | 1068 | 1000 |
| 150 | 3000 | 2250 | 2000 | 1800 | 1665 | 1500 | 1335 | 1250 |
| 180 | 3600 | 2700 | 2400 | 2160 | 1998 | 1800 | 1602 | 1500 |
| 210 | 4200 | 3150 | 2800 | 2520 | 2331 | 2100 | 1869 | 1750 |
| 240 | 4800 | 3600 | 3200 | 2880 | 2664 | 2400 | 2136 | 2000 |
| 270 | 5400 | 4050 | 3600 | 3240 | 2997 | 2700 | 2403 | 2250 |
| 300 | 6000 | 4500 | 4000 | 3600 | 3330 | 3000 | 2670 | 2500 |
| 330 | 6600 | 4950 | 4400 | 3960 | 3663 | 3300 | 2937 | 2750 |
| 360 | 7200 | 5400 | 4800 | 4320 | 3996 | 3600 | 3204 | 3000 |

Simplified maintenance and repair

The ModuPower™ MPX is designed for maximum reliability and minimum maintenance. However, we kept the user in mind involving servicing and replacement parts as components are readily available and designed to be replaced by the user. The end user has the ability to replace either complete modules or the individual components. With all replacement parts, including the HV Unit, weighing less than 100 pounds, a single technician can easily perform all maintenance without the need for heavy machinery or special equipment. Each major part can be typically replaced in less than 30 minutes after ModuPower™ MPX is properly shut down and tagged out. Additionally, major cooling system components use dry break connections which drastically minimizes time and effort needed to exchange required components.

Remote mounting with HV cable

With the use of high voltage cable, the ModuPower™ MPX can be mounted in virtually any location, upwards of 500 feet away from the ESP. With the power supply and controller in a location far from casing leaks and other environmental conditions, the plant technicians are more likely to pay attention to the ESP performance and the life span of the ModuPower™ MPX will increase dramatically due to its location.

Using ModuPower™ MPX can significantly reduce the capital costs for maintaining or improving PM emission rates. Call Stock today to ensure that your facility is evaluating the right technology for regulatory compliance.

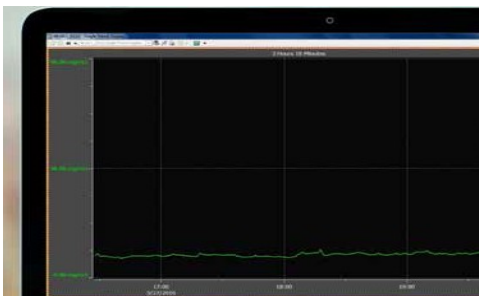
Opacity BEFORE ModuPower™ MPX



BEFORE condition 4 conventional TRSET
total output power 49 kW

| | Type | SV (kV) | SI (mA) | P (kW) |
|---------|-------|---------|---------|--------|
| Field 1 | TRSET | 38 | 240 | 9 |
| Field 2 | TRSET | 33 | 250 | 8 |
| Field 3 | TRSET | 35 | 450 | 16 |
| Field 4 | TRSET | 34 | 470 | 16 |

Opacity AFTER ModuPower™ MPX



AFTER condition 2 ModuPower™ MPX & 4 conventional TRSET
total output power 74 kW

| | Type | SV (kV) | SI (mA) | P (kW) |
|---------|----------------|---------|---------|--------|
| Field 1 | ModuPower™ MPX | 38 | 600 | 23 |
| Field 2 | ModuPower™ MPX | 34 | 446 | 15 |
| Field 3 | TRSET | 34 | 520 | 18 |
| Field 4 | TRSET | 36 | 501 | 18 |

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