

| Momentary Voltage Restorer | Three Phase 15 - 30 kVA |

- The Raptor power platform is advanced, flexible, and scalable; developed by a team of industry experts at TSI Power.
- Multiple power quality applications can be configured with the Raptor.
- *Sparrow Hawk* is a series of low power three-phase Momentary Voltage Restorers (MVRs) built with Raptor technology.
- The *Regenerative Load option* is designed specifically to protect loads with regenerative nature such as *elevators* and *CNC machines*.



Features and Benefits

Ultra-fast response time protects sensitive loads from unscheduled downtime due to voltage sags and swells.

Sparrow Hawk's topology protects loads from open circuit conditions at the input. (e.g., switching between dual source supplies)

Standby mode under normal input voltage conditions ensures high efficiency, no additional harmonics, and long life.

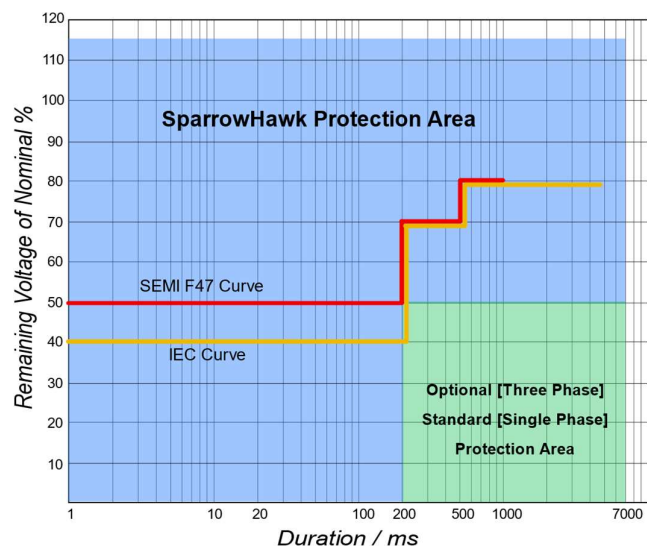
User-adjustable control parameters configure *SparrowHawk* for unique application environments.

Standby operation minimizes interaction with power distribution systems, and makes *SparrowHawk* compatible with most loads.

Virtually maintenance free – requires no scheduled maintenance.

On-site functionality can be verified without special equipment.

Complies with and exceeded SEMI F47 and IEC[^] voltage sag immunity standard. Optional protection area exceeds Samsung Power Vaccine.



[^]Note: IEC compliance only with Extended ride through option.

Technical Specifications *

AC Input

Nominal voltage	200 / 208 / 220 / 380 / 400 / 415 / 480 VAC
Operating voltage range	+/- 10 % of rated voltage
Nominal operating frequency / range	50 / 60 Hz auto select
Operating frequency range	+/- 4 Hz

AC Output (Load)

Rated load	15/20/30 kVA
Power factor	0.5 lagging to 0.9 leading
Crest factor	Maximum 2
Static bypass overload capacity	120 % for 60 s 150 % for 30 s 200 % for 10 s 300 % for 5 s
Regenerative load	Contact factory
Output connections	Hardwire terminations (for L1, L2, L3, Neutral & Ground)

Performance

Voltage sag protection magnitude and duration	<i>Three Phase:</i> Maximum sag of 50 % nominal voltage for 7 seconds (exceeds SEMI-F47 curve) <i>Three Phase:</i> 50-0 % nominal voltage for maximum 100 ms/200 ms** at 1.0 Power factor <i>Single Phase:</i> 90-0 % nominal voltage for 7 seconds (exceeds SEMI-F47 curve, IEC, Power Vaccine)
Voltage swell protection magnitude and duration	Minimum swell of 115% of nominal voltage for 7 seconds
Output voltage restoration	Typically > 95 % Minimum >90 %
Voltage correction response time	Less than 2 ms
Efficiency	99 % [400 – 418 V] – 98 % [200 – 380 V] typical (under 50~100 % load condition)

Mechanical

Cabinet construction	Powder-coated galvalume cabinet.
Emergency mechanical bypass	Optional
Cabinet weather protection ratings	IP 20 (for use in protected indoor environments)
Cooling method	Active Convection
Cable entry	Top entry
Noise	Less than 60 dB (1 meter)

Environment

Operating altitude range	From 0 to 2,000 meters above sea level (without derating)
Operating temperature range	0 to +40 °C
Operating humidity range	0 to 90 % relative humidity (non-condensing)

Communication

Communication protocol	Ethernet / Modbus TCP
Display	7" LCD touch screen display

Design Standards

IEC, SEMI F47

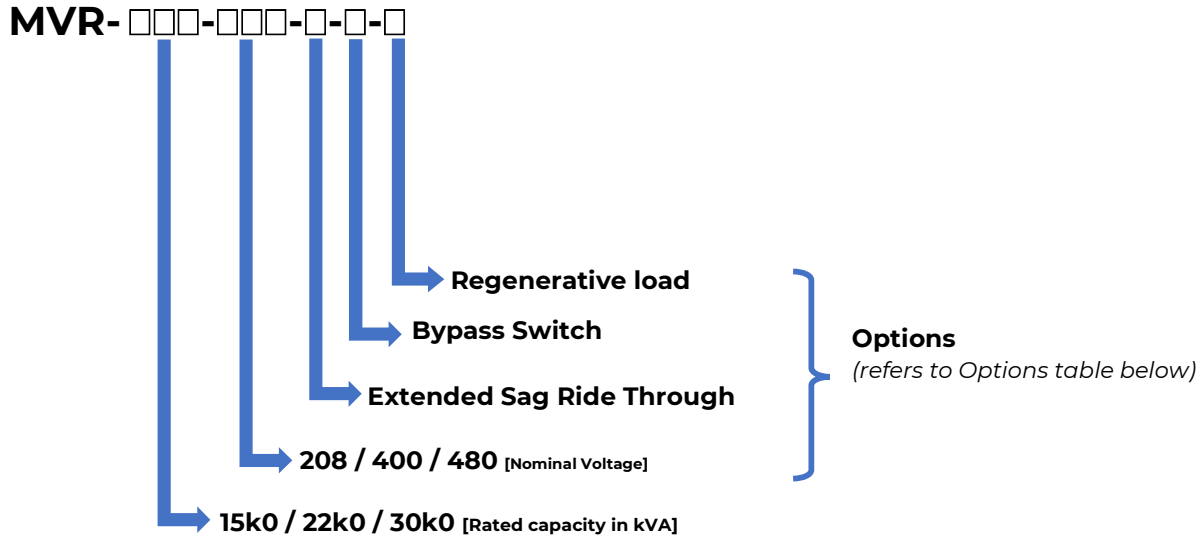
Warranty

2 Years

***Due to continual engineering improvement, specifications are subject to change without notice.**

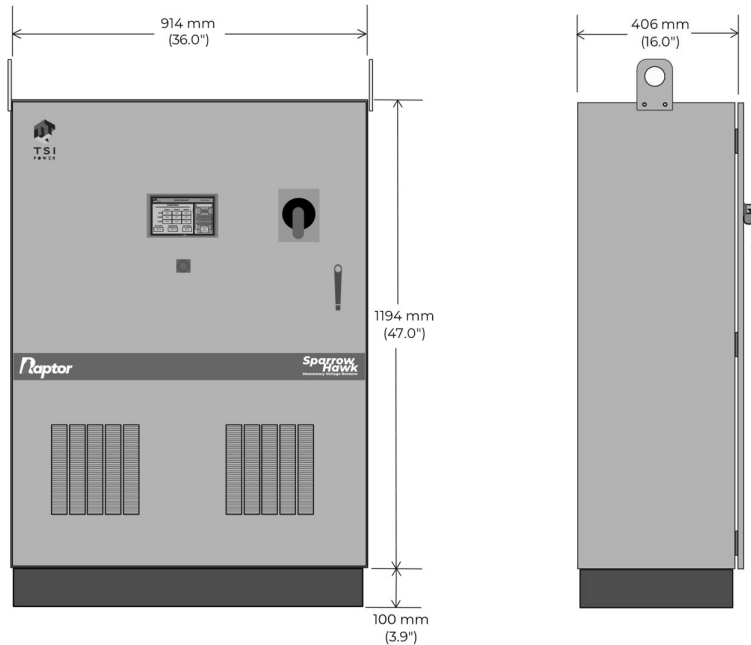
****Optional**

Model Number Selection Guide



Options	Descriptions	Suffix
Base voltage	Base voltage of the equipment. The nominal voltage is user adjustable.	208 (Adjustable 189 – 220) 400 (Adjustable 364 – 424) 480 (Adjustable 437 – 509)
Extended sag ride through	Extend ride through at 0V to 200ms with additional energy storage components.	X: 200ms ride through S: Standard 100ms ride through
Rotary bypass switch	Build-in Rotary Bypass Switch for providing normal utility supply during a fault.	N: None F: Non-isolating manual fail-safe rotary bypass switch
Regenerative load	Applicable for load that produce regenerative power, such as elevators, escalators and CNC machines. Maximum acceptable regenerative load shall be 100% of rated load.	N: None RG: Applicable for regenerative load.

Dimensions[^]

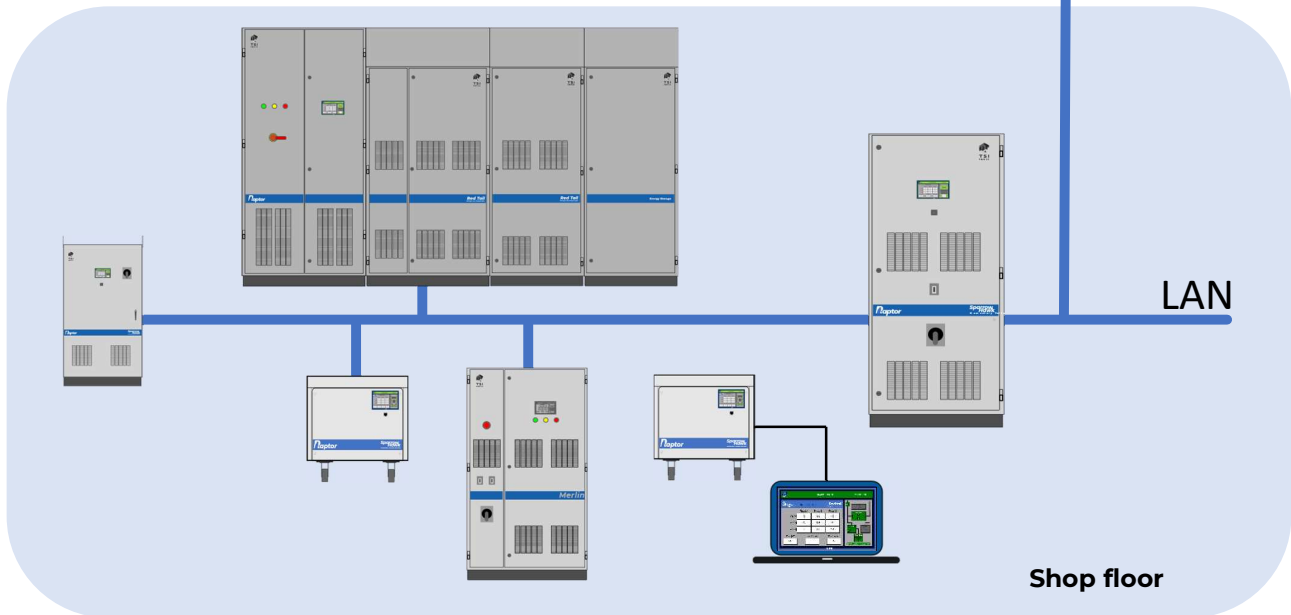
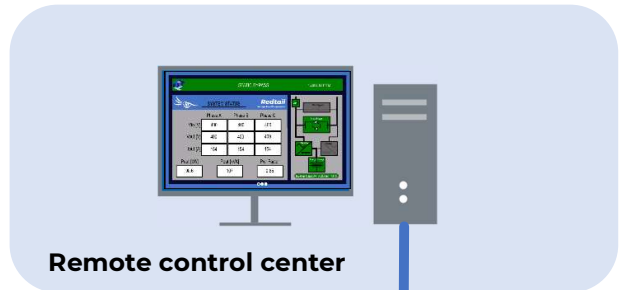
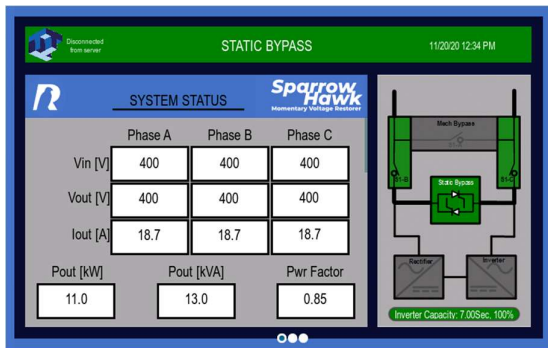


[^]Note: Dimension subject to change based on actual load requirement.

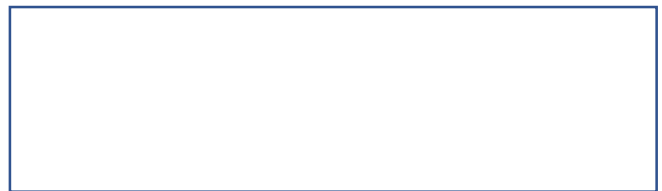
Raptor Eye Monitoring Software



- All Raptor products come equipped with **Raptor Eye** monitoring software.
- **Raptor Eye (Local version)** is accessed via the built-in touch screen located on the product.
- **Raptor Eye (Remote version)** can be installed on remote computers for monitoring via direct or Local Area Network connection.
- Various system status values including but not limited to voltage, current, frequency, power, and DC bus voltage can be monitored.
- Voltage sags & swells, as well as fault & alarm event logs are available for viewing and downloading using the software.
- User-adjustable parameters, including nominal voltage, sag/swell trigger set points, sensitivities, and others. (**Raptor Eye (Local version)** only)



Exclusive Distributor



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