

# MGE EPS 7000

300/400/500 kVA

High availability, high performance



300 – 500 kVA robust three-phase power protection with adaptability to meet the unique requirements of medium to large data centers, buildings, and critical industrial processes

- Flexible and very adaptable
- Strong electrical features
- Intuitive monitoring
- Parallel capabilities
- Synchronization to external source
- High availability architecture components

## Features and benefits

### High availability, high performance

The MGE™ EPS 7000 is the facility manager's top UPS choice with full front access and all critical serviceable components reachable within minutes, not hours. These UPS modules allow IT and facilities managers to respond to increasing demands placed on power infrastructure in growing facilities by offering N+1 capabilities. The EPS 7000 was the first in the industry to incorporate a 100 percent-rated static switch on output of UPS inverter with no mechanical contactors, which can age and weaken during UPS operation. Energy efficiency is a key feature for the EPS 7000 with up to 94 percent system efficiency at full load. EPS 7000 provides pure flexibility, with auxiliary equipment such as paralleling gear, external maintenance bypass, critical bus synchronization, bottom entry cabinets, and distribution to meet specific site configuration while maximizing efficiency and output power quality.

### MGE EPS 7000

#### Availability

Higher power density

Low KVAR filter

Redundant parallel logic

Integrated output isolation transformer

#### Serviceability

Front-access design

Modular rectifier and inverter sub-assembly

Intuitive standard graphical display

#### Economy

Low installation costs

Reduced footprint

Low CapEx solution

#### Simplified installation

Top entry standard

Comprehensive installation procedures

#### Approvals

UL1778

CUL

#### Manageability

Adaptable configurations

Advanced battery management

Remote power monitoring

Built-in modbus

#### Options

Input galvanic isolation

Battery cabinet

Bypass cabinet

Bottom entry cabinet

#### Typical applications

Data Center

Industrial

Healthcare

Petrochemical

Utility

#### Support and service

Extended warranty plans

Worldwide field service organization

Available project management services

## MGE EPS 7000 features

### Digital power quality inverter

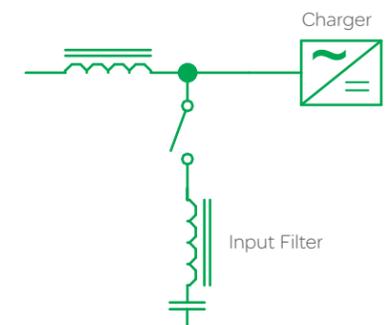
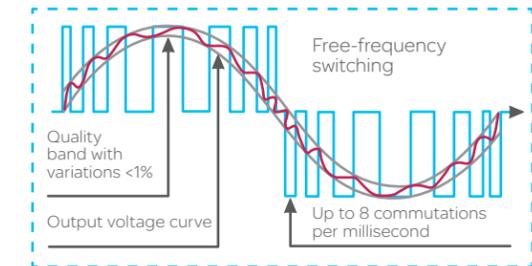
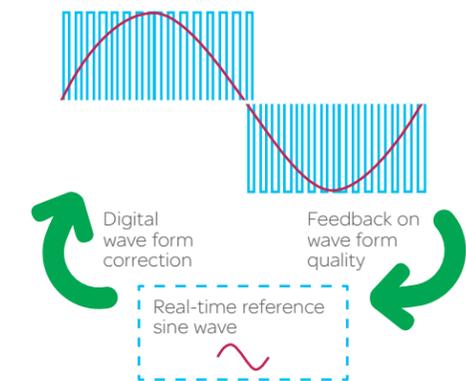
Using a unique technology called Digital Power Quality Management (DPQM), the inverter maintains precision voltage regulation under all operating conditions. The key to the superior performance lies in the speed and resolution of the waveform, which is generated by up to eight pulses per millisecond, allowing the waveform to be tightly controlled. The waveform is constantly compared to a real-time reference sine wave. If the sine wave deviates from the reference sine wave, the gain of the inverter output is adjusted, creating a "correction" pulse maintaining a "power quality envelope" that is +/-1 percent of a perfect sine wave. A free switching frequency accelerates during periods of major variations for better regulation. By optimizing the switching frequency, the EPS 7000 is also able to minimize switching losses and maintain a high efficiency level even at lower loads.

Another benefit of the high-resolution control topology is that harmonic distortion reflected from the loads is practically eliminated.

### UPS input filter technology

The technology used to maintain the input power factor and avoid leading PF loads is an important consideration. Many other large UPS modules rely on disengaging the input filter capacitors with a contactor at lower loads where the UPS risks becoming a leading PF load. Switching capacitors will create large notches and disturbances on the utility bus. Furthermore, the system is relying on a mechanical contactor. Our system is based strictly on a solid state inductor assembly balancing the effect of the capacitors — a safe and reliable technology.

### Digital power quality logic



# MGE EPS 7000 features

## Solid state disc SCR transfer switch

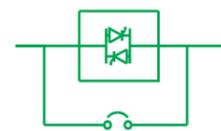
EPS 7000 uses large hockey puck SCRs in its static bypass. The ability to clear faults safely is dictated by the capacity of the static bypass switch. Because these SCRs can tolerate quick fault currents over 20 times that of the UPS rating, they can safely use the fault-clearing power of the utility to clear the fault without any damage to the UPS.

Many other UPS modules typically use lower current brick type SCRs on their static switches that are only momentary rated and rely on an overlap contactor to carry the current. Because fault current rises so quickly, it can often exceed the rating of these momentary SCRs before the contactor has a chance to engage. The fault clearing capability of the UPS is regulated by capacity of the static bypass switch. The EPS 7000 uses robust disc SCR static bypass switch which is able to clear instantaneous fault current over 20 times the nominal rating of the UPS. The EPS 7000 bypass is 100 percent continuous duty rated, making it more reliable than systems that pair smaller, momentary bypass switches.

## Fault tolerant

Output faults are common events on any UPS system. Even a small downstream device fault may take four or five cycles before a distribution circuit breaker opens. This means that the UPS module must be capable of clearing the fault. IGBTs (the transistors) used in the inverters simply are not designed to sustain faults. The key to managing faults is to firstly protect the inverter by current limiting it from fault conditions — and then safely make a seamless transfer to utility via the static bypass switch. The result is that the load will stay protected and the UPS will remain intact.

## Static Switch



Momentary Switch

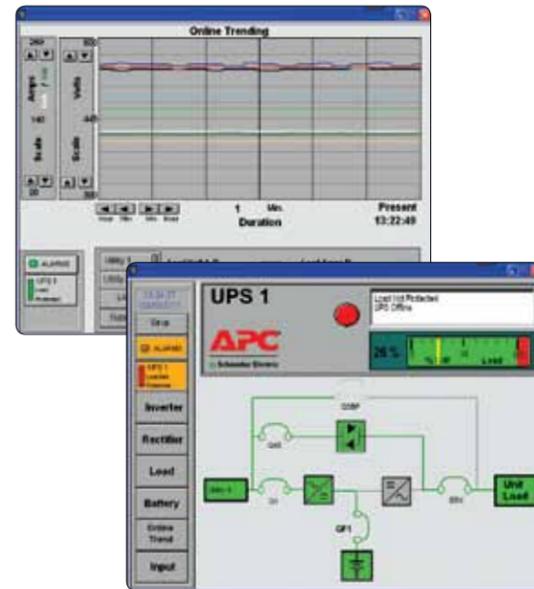
## Static Switch



Continuous Duty Switch

## New standard graphical user interface

The Advanced Graphical Interface for the EPS 7000 UPS system features a 12 in. high contrast TFT LCD touch screen. Delivering features including animated mimic diagrams, alarm event logs, trending, component level status and more, the interface presents UPS status information in an easy to read graphical format. Guided by a clear menu, users can navigate through all screens to explore system level information on multi-module systems drilling right down to module and component level information. Operator procedures simplify the use of the UPS, contributing to an overall increase in reliability by mitigating user errors.



# MGE EPS 7000 options

## Input isolation transformer

EPS 7000 has the capability to include a matching input isolation transformer cabinet within the UPS lineup. Integrating the transformer directly into the lineup module provides all the benefits of galvanic isolation, including a very robust buffer between the utility and the critical load.

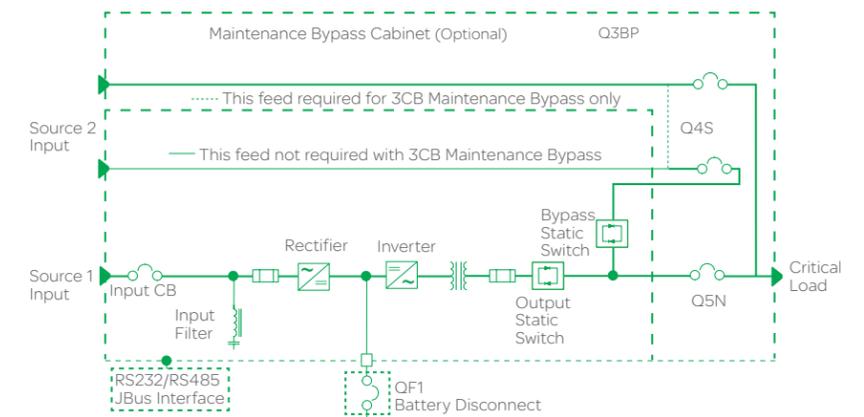
## Options

- Input isolation transformer
- Output distribution
- External maintenance bypass
- Bottom cable entry
- Remote alarm status panel
- Seismic anchors
- SNMP/Network management card
- Battery monitoring
- Continuous duty and momentary duty static switch cabinets (SSC)
- Critical bus synchronization module
- Battery disconnect

## Seismic compliancy

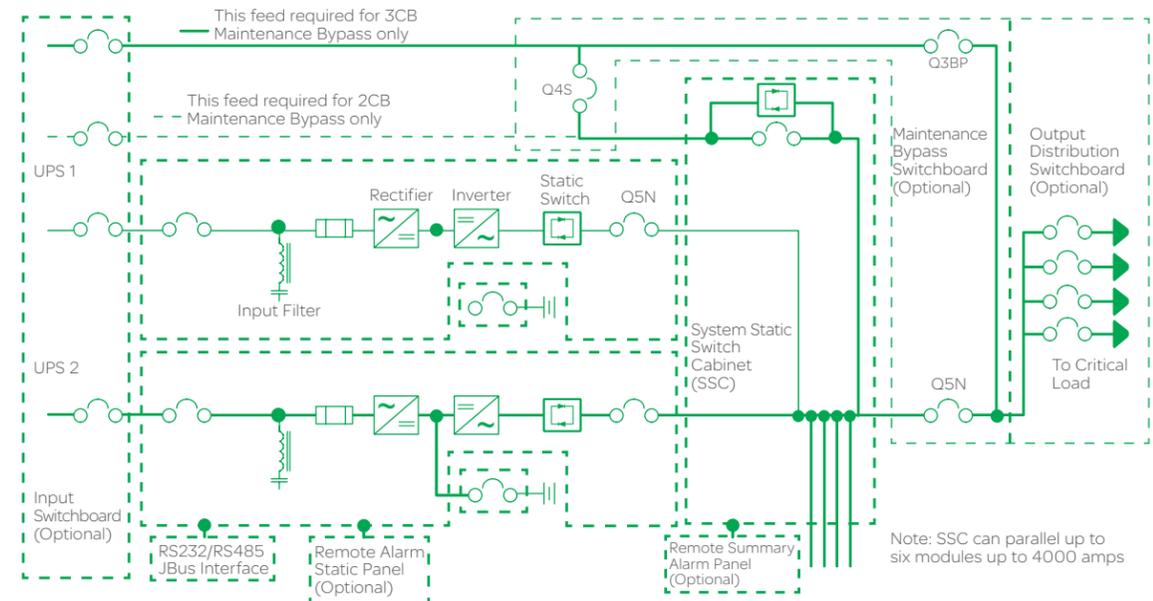
EPS 7000 modules are compliant with IBC 2006 (International Building Code and OSHPD). Proper sizing and placement of seismic brackets is imperative in adequately restraining equipment against seismic effects. EPS 7000 seismic mounts and restraints are designed to provide strength during an event. EPS 7000 installation drawings will guide you in proper installation.

## EPS 7000 single module



Single or dual input configurations available

## EPS 7000 parallel module with System Static Switch Cabinet



## Specific technical advantages

### Battery management

Batteries represent a significant investment in any UPS system — often half the cost. They also have the highest risk of failure of any component. The EPS 7000's battery management system performs two critical functions. First, it collects all the relevant inputs to display the most accurate time remaining. Then by incorporating key details such as battery temperature, the EPS 7000 rectifier continually optimizes the charge voltage to maximize battery life.

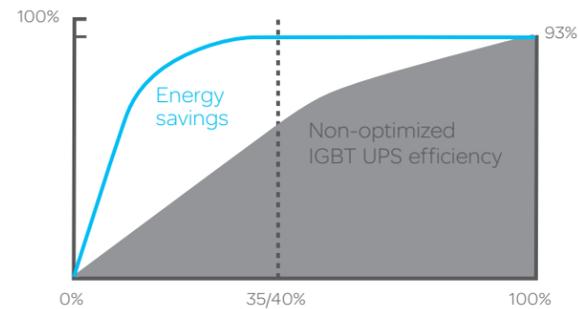
### Full output voltage regulation over entire range of the battery

The EPS 7000 uses a 480 VDC bus. As a result of the DC bus closely matching the AC output voltage, the UPS is able to maintain the output voltage regulation over the whole operating range of the battery. Some UPS modules that use lower DC busses (using fewer batteries in series) may experience decaying output voltage as the battery voltage/DC bus drops during discharge. This means that the EPS 7000 UPS will be able to maintain perfect voltage regulation over the full range of the battery.

### Energy efficient for significant cost savings

The energy efficiency of the EPS 7000 is extremely high especially at lower loads where redundant UPS modules operate. The result is often energy cost savings that usually exceed the cost of the UPS module in as little as three to five years compared to leading brands.

- Core efficiency up to 94 percent
- High efficiency maintained over lower load levels where most UPS modules operate
- Potential energy cost savings that can equal the value of the UPS in as little as a few years



## StruxureWare for Data Centers Software Suite

APC™ by Schneider Electric™ UPS units and secure power systems are a core component of any architecture designed for highly critical applications, such as data centers, industry environments, infrastructure, and buildings.

Intelligent energy management of these systems is enabled by Schneider Electric EcoStruxure™ integrated hardware and software system architecture. StruxureWare™ software applications and suites are a key element of the EcoStruxure architecture. StruxureWare software helps maximize system reliability and optimize operational efficiency.

StruxureWare for Data Centers software collects and manages real-time information about assets, resource use, and operation status throughout the data center life cycle. This data center infrastructure management (DCIM) software fully integrates the MGE EPS 7000 UPS. With full system visibility, managers can monitor and apply this information in order to optimize data center performance to meet IT-, business-, and service-oriented goals.



## A Comprehensive Portfolio of Services

Schneider Electric Critical Power & Cooling Services (CPCS) provides the highest quality services and solutions by trained and trusted professionals. Our world-class services offer a smart way to build, operate, and maintain your critical applications, ensuring the right people, in the right place, at the right time.

### Assembly and Start-Up Service

Assembly and Start-Up Service by a certified Field Service Engineer (FSE) ensures full factory warranty coverage. A Schneider Electric certified installation of your solution ensures your equipment is properly and safely configured for optimal performance. This service features a standard eight-hour, five-day response time, with upgrades available for off-business hours.

### Advantage Plans

Flexible service packages offer hassle-free system maintenance to improve uptime at a predictable cost. These packages provide your system with the care it needs to operate most efficiently while minimizing downtime. The Advantage Plus, Prime, Ultra, and Max are full-service packages that include technical support, preventive maintenance, quick on-site response, and remote monitoring. Response time upgrades are available.

### Remote Monitoring Service (RMS)

RMS is an economical and easy-to-use Web-based service that lets you quickly respond to environmental or system changes. Trained technicians provide secure 24-hour monitoring of your physical infrastructure to diagnose and resolve problems before they become critical.

### Preventive Maintenance

Preventive Maintenance on-site examinations of your critical systems are designed to prevent problems before they occur and keep your system running at maximum efficiency.

### On-site Warranty Extension Service

In the event of a system issue, an FSE will arrive on site by the next business day to isolate, diagnose, and correct the problem in as little time as possible, minimizing downtime. Upgrades to even faster response times are available.



# Technical specifications

Rated power (kVA/kW)	300/270	400/360	500/450	300/270	400/360	500/450
<b>Normal AC input</b>						
Input voltage (V)	480 (+/- 10% , 3ph 3 wire + ground)			600 (+/- 10% , 3ph 3 wire + ground)		
Frequency (Hz)	60 Hz +5%					
Power factor	0.9					
THDI (full load)	300 kVA (10%), 400 kVA (8%), 500 kVA (7%)					
Nominal input current (A)	371	508	656	322	441	569
Maximum input current (A)	453	590	738	404	523	652
<b>Bypass AC input</b>						
Voltage (V)	+/- 10% UPS output voltage (3ph, 3/4 wire + ground)					
Frequency (Hz)	60 Hz (+/- 0.25 Hz up to 2.0 Hz)					
Nominal bypass current (A)	361	481	601	289	385	481
<b>Output</b>						
Output voltage (V)	480 (3ph 3 or 4 wire + ground)			600 (3ph 3 or 4 wire + ground)		
Power factor	0.9					
Frequency	60 Hz					
UPS output current (A)	361	481	601	289	385	481
<b>Battery</b>						
DC current (max)	721	962	1,195	721	962	1,195
<b>Overall efficiency</b>						
System efficiency (full load)	94%		93%	93%		92.5%
Full load heat rejection (BTUs)	59,400	78,100	110,750	65,000	86,000	112,000
<b>Environmental conditions</b>						
Acoustical noise level	75° dBA at 5 feet					
Operating temperature	0°C to 40°C (32°F to 104°F)					
Non-operating	-20°C to +45°C (-4°F to 113°F)					
Relative humidity	0 to 90% (non-condensing)					
<b>Dimensions and weights</b>						
UPS module (lb.)	6,900					
UPS module (W x H x D)	69 x 82 x 39 in.					
Maintenance bypass cabinet (lb.)	540					
Maintenance bypass cabinet (W x H x D)	22.75 x 82 x 39 in.					
Bottom entry cabinet (lb.)	190					
Bottom entry cabinet (W x H x D)	14 x 82 x 39 in.					
Transformer cabinet (lb.)	3,600					
600 V input transformer cabinet (W x H x D)	44.75 x 82 x 39 in.					

NOTE: Due to continued product enhancements, specifications are subject to change without notice. Data above is for reference only - not construction. Schneider Electric assumes no liability for damages as a result of any data errors or omissions in this document. Consult product guide specifications and installation drawings for further details.