

9900A

> **9900A** UPS

UNINTERRUPTIBLE  
**POWER SUPPLIES**



# > EfficiencyIMPACT

True on-line, double conversion UPS systems have emerged as the preferred topology for mission critical applications because they offer lower risk of critical load loss to power quality issues. The trade off, however, was lower system efficiency when compared to off-line standby type UPS systems. That was until now!!

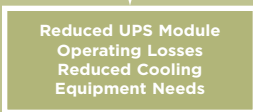
The Mitsubishi 9900A Series UPS is a true on-line UPS system offering high efficiencies throughout the full load spectrum.

## The POWER of GREEN

Mitsubishi Electric's focus is to produce products with leading edge technology of the highest quality, with the utmost consideration of the earth's environment that we all share. It is from that focus that the UPS Division has developed the 9900A Series UPS.

## Calculate Your Energy Savings

A 9900A Series UPS installed in a facility loaded to 75% of its capacity with a utility cost of \$.10 per kWh yields the following energy savings when compared to a competitive UPS.



225KVA	EFFICIENCY @ 75% LOAD	UTILITY COST PER KWH	5-YEAR* SAVINGS
9900A	96%	.10	\$13,140
TYPICAL COMPETITOR	94%	.10	—

\*UPS Power Savings only. Additional savings from lower cooling cost not considered.

To learn more about the impact Mitsubishi UPS has on the "greening" of your facility, call MEPEI UPS Division at 724.778.3134 and receive a free efficiency calculator.

# 9900A

The 9900A UPS system uses the most advanced Insulated Gate Bipolar Transistors (IGBT) in both the converter and inverter. This unique combination simply means our 9900A UPS offers superior reliability and the most efficient system in the industry.



## SERIES

# >9900AUPS

Mitsubishi Electric raises the bar with the introduction of the 9900A Series Uninterruptible Power Supply (UPS). Its patented inverter design produces the highest efficiency in the industry to go along with the quality and reliability that users are accustomed to when specifying Mitsubishi. Let's explore the benefits that you can expect.

### EXCEPTIONAL EFFICIENCY

The 9900A Series UPS delivers as much as 96.5% system efficiency substantially reducing operating and cooling costs by several thousands of dollars annually when compared to its competitors. Efficiency ratings of as much as 94% are possible with loads as low as 20%. The result: reduced cost of ownership and shorter payback when compared to conventional UPS.

### RELIABILITY AND ADAPTABILITY

No organization in the UPS industry offers the in-depth experience and unparalleled quality as Mitsubishi Electric. Precision engineering and years of experience pioneering cutting edge inverter and converter design gives the users the best performing, most reliable UPS in market. Because each module features its own static bypass and control circuitry, the 9900A UPS can be utilized in single module (SMS) or multi-module (MMS) configurations. This allows for a highly reliable and flexible system approach. If loads on a MMS decrease, a module or modules can be removed and used elsewhere in a single module application. Likewise, an existing SMS can be paralleled for capacity or redundancy at a later date.

### SCALABILITY

The small footprint and lightweight design of the 9900A Series takes up less room and saves on precious datacenter floor space. This system not only minimizes floor space, it offers the extraordinary option of adding or removing modules with minimal downtime. As a result, system availability is enhanced.

### OPEN ARCHITECTURE

The 9900A Series UPS provides for a variety of communication methods with features that make the product inherently easy to use and maintain.

### SUPERIOR PERFORMANCE

Mitsubishi pioneered the use of the IGBT in the inverter and converter sections of the UPS. Many UPS systems on the market today have followed suit. It is not enough to merely provide IGBT technology. How the IGBT is controlled is the key. Mitsubishi has incorporated its Digital Signal Processor and Direct Digital Control (DDC) to gain the full benefits of the most advanced generation IGBT that is utilized in the 9900A Series UPS. The combination means superior performance characteristics under all load conditions.

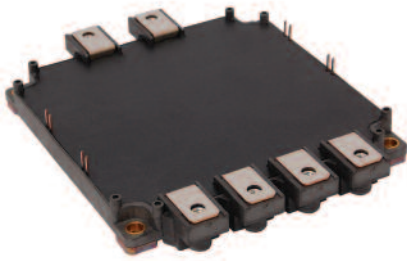
KVA	INPUT	OUTPUT	OUTPUT PF	DIMENSIONS (WXDXH)	LBS	PARALLEL CAPABILITIES	DC
80	480 VAC	480 VAC	0.9	27.6" X 32.8" X 80.6"	855	UP TO 4 MODULES	480 VDC
100	480 VAC	480 VAC	0.9	27.6" X 32.8" X 80.6"	855	UP TO 4 MODULES	480 VDC
150	480 VAC	480 VAC	0.9	35.4" X 32.8" X 80.6"	1,160	UP TO 4 MODULES	480 VDC
225	480 VAC	480 VAC	0.9	35.4" X 32.8" X 80.6"	1,230	UP TO 4 MODULES	480 VDC

# RELIABILITY

## 3-year-warranty

up to **96.5%** system efficiency

# EFFICIENCY



## *Mitsubishi Electric Customized IGBT Module*

*Mitsubishi Electric is the leading manufacturer of Insulated Gate Bipolar Transistors (IGBT).*

*Customized IGBT modules are utilized in the 9900A Series UPS Systems. These advanced, high-performance transistors provide a variety of intelligent features:*

- > Large Power Capabilities
- > High Speed Switching
- > Low Control Power Consumption
- > Low Switching Loss

*IGBT has become the preferred power device for UPS systems, but it is how the IGBT power device is controlled that is key to achieving optimum UPS performance.*

# IGBT

At Mitsubishi Electric Power Products, Inc., we understand that in today's high-speed, digital world, critical load downtime can cost your company millions of dollars. That is why we have developed the 9900A UPS – our most innovative and efficient UPS.

### STANDARD FEATURES

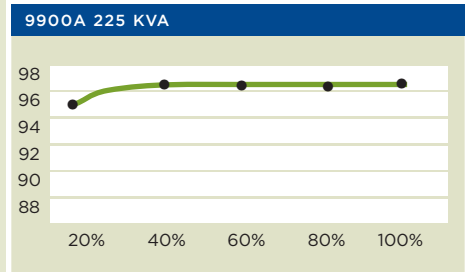
- > Fully Digital, IGBT Converter and Inverter
- > Advanced Circuit Topology and Pulse Width Modulation (PWM)
- > Parallel up to Four (4) Modules
- > Front Access UPS
- > Small Footprint and Weight
- > UL 1778 Listed

### AC INPUT

- > 480VAC 3P, 3W, 60 Hz
- > +15%, -20% Voltage Range
- > <3% THD @ 100% Load
- > Power Factor: .99
- > Surge Withstand: meets IEEE, 587. ANSI C62.41-1991

### DC LINK VOLTAGE

- > 480 V



TYPICAL TEST RESULTS

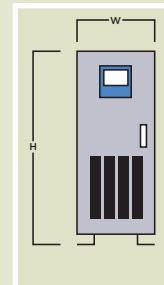
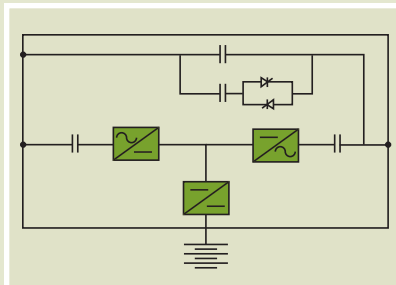
### AC OUTPUT

- > 480 VAC 3P, 3W, 60 Hz
- > Power Factor: 0.9
- > Voltage Accuracy: +/- 1%
- > Transient Recovery Time: 20 Milliseconds
- > Step Load (100%): +/- 2%
- > Voltage THD: 2% Maximum @ 100% Linear Load
- > Overload: 125% for 2 Minutes, 150% for 1 Minute
- > EMI Compatibility: FCC Article 47, Part 15 Subpart B

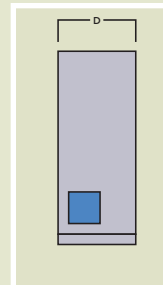
### OPERATING ENVIRONMENT

- > Audible Noise: 70dB @ 1 Meter
- > Temperature: 0–40°C
- > Relative Humidity: 5–95% (Noncondensing)
- > Altitude: 0–7,400 ft.

### 9900A ONE LINE DIAGRAM



9900A UPS Module front view



9900A UPS Module side view

# FLEXIBLE

## ultimate flexibility

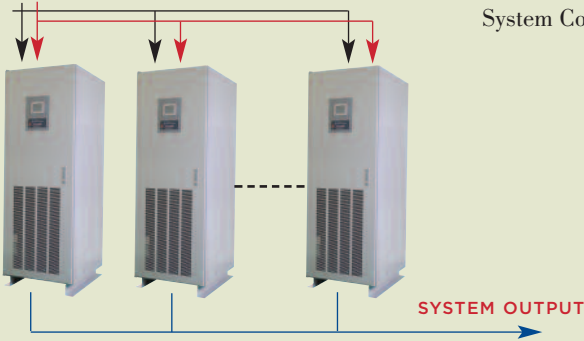
### 9900A UPS MULTI-MODULE SYSTEM (MMS) LINE UP

The Mitsubishi 9900A Multi-Module System (MMS) incorporates individual parallel control and static bypass circuitry in each independent UPS Module. Our 9900A MMS therefore offers complete system redundancy, reliability and flexibility with cost saving scalability and a reduced footprint.

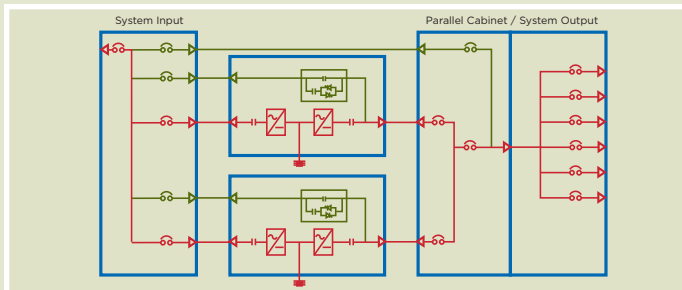
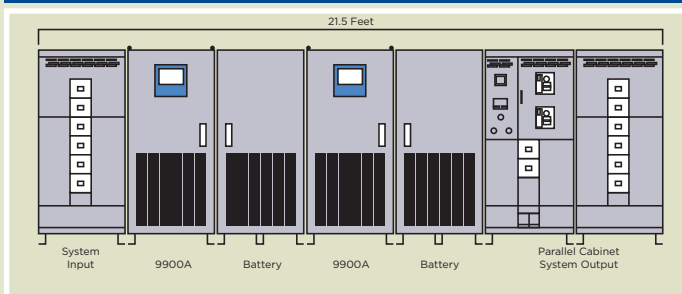
### MITSUBISHI 9900A MMS FEATURES INCLUDE:

- > Up to 4 UPS Modules in Parallel
- > Cross Current Sensorless Control
- > System Operation and Monitoring from any UPS Module
- > UPS Module Adaptable for MMS or SMS Operation
- > Customizable Input and Output Distribution
- > System Load Bank Test Circuit (Optional)
- > Parallel for Redundant or Capacity System Configuration

#### SYSTEM INPUT



#### TYPICAL 2 X MMS CONFIGURATION



Note: Dimensions dependent on system design and configuration.

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