

> **2033D** UPS  
UNINTERRUPTIBLE  
**POWER** SUPPLIES



2033D

## Superior Performance, Reliability and Safety Come from Experience. Our Uninterruptible Power Supply Systems Ensure All Three.

Mitsubishi Electric has been developing and manufacturing Uninterruptible Power Supply (UPS) components and systems for more than three decades. That experience, and the continuous application of new power-device technologies to further improve products in the industry clearly explain why Mitsubishi Electric has dominated a large portion of the world UPS market for years.

When purchasing a UPS system, the key word is “dependability.” And there’s one company that many rely on. Uninterruptible Power Supply systems by Mitsubishi Electric.



### IGBT – Transistors with Excellent Performance Characteristics

Mitsubishi Electric is the leading manufacturer of Insulated Gate Bipolar Transistors (IGBTs), and now utilizes IGBT in the converters and inverters of its 2033D Series UPS systems. These advanced, high-performance transistors provide a variety of intelligent features.

- High Ampacity Transistors (600A)
- High Speed Switching
- Low Control Power

### Low Input Current Harmonics (THD)

- 4% typical (100% load)
  - 5% typical (75% load)
  - 7% typical (50% load)
- (No additional filtering required)

### Generator Sizing Ratio (UPS)

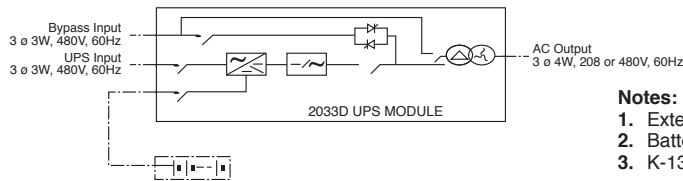
- 1:1 (UPS kVA/Generator kW)

### Low Heat Loss/High Efficiency

Use of IGBT enables efficient high-speed switching thus reducing heat dissipation in the UPS. (Higher efficiency means lower cost per kilowatt to the customer.)

## 2033D ONE-LINE DIAGRAMS

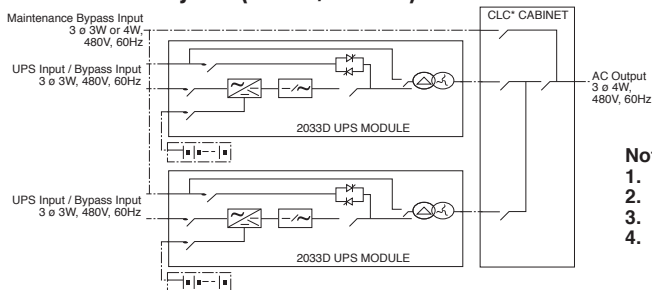
### SMS • Single Module System



**Notes:**

1. External Maintenance Bypass System (MBS) is optional.
2. Batteries included in 30kVA only.
3. K-13 isolation stepdown transformer (208V output)

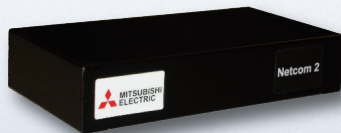
### MMS • Multi-Module System (480V in/480V out)



**Notes:**

1. Maximum 2x System for redundancy only
2. CLC\* (Critical Load Cabinet includes Maintenance Bypass)
3. All CLC Cabinets engineered and supplied by MEPPi
4. For 208V output – consult MEPPi

## UPS MONITORING EQUIPMENT & SOFTWARE



**The Netcom2 works with all major NMS systems on Ethernet –**

*Netcom2 works with the most widely used Network Management Systems:*

*HP OpenView,  
Novell ManageWise,  
Sun NetManager,  
IBM NetView, and many more.*

The **Netcom2** hardware SNMP/Web adapter runs an embedded Simple Network Management Protocol (SNMP) software agent. This powerful and intelligent unit is designed for the rigorous task of managing the UPS systems that protect equipment and the critical data residing throughout the network.

**Netcom2 Features:**

**Remote UPS status monitoring** – Monitor a remote UPS system using an RS-232 Cable to the Netcom2 for one UPS system to a remote workstation (NMS) through an Ethernet connection

**Web Card** – Assign an IP address to your UPS system to monitor the UPS system from anywhere around the world

**SNMP Adapter** – Turn the UPS system's protocol into an SNMP software agent and enable SNMP traps

**SNMP Viewer** – Unique Mitsubishi design that color coordinates SNMP messages that inform the NMS about all current UPS alarms

**Send Shutdown Signal to Networked Servers** – Send a shutdown signal to servers connected via the Ethernet network

**Battery and Service Monitoring** – Monitor the battery life and servicing details of the UPS

**E-mail** – Send the Administrator an e-mail when an event occurs

**ModBus Communications for Building Management Systems**

The MUCM card allows the customer to integrate Mitsubishi Electric UPS systems into their current Building Management Solution. The MUCM is a user-programmable protocol converter, or data concentrator, that is DIN-rail mountable, with 2 serial ports: One RS-232, one RS-485, and over 2,048 internal mailbox registers. Through the ModBus protocol converter, the UPS system's variables can be monitored through various Building Management System vendors' software.



Log Menu

## Extended Battery Life

- Current source from batteries for step loads is no longer required with the installation of IGBT in both the converter and the inverter. Previous UPS systems required assistance from batteries when the converter was unable to supply the required current. This cycling of batteries caused shorter life.
- Mitsubishi Electric IGBT incorporate the latest technologies and provide step load applications (0-100%) without the use of batteries, thus ensuring maximum battery service life (i.e., lower lifetime cost of UPS system).

## Internal Maintenance Bypass

All 2033D Series UPS systems are equipped with an internal wrap around maintenance bypass system for greater maintenance flexibility.

- UL 1778 approved

## Superior Control

All 2033D Series UPS systems use pulse width modulation (PWM) for superior control and performance. A digital signal processor (DSP) ensures precise control of all input/output parameters.

## Operator-Friendly Control Panel Features:

- Mimic bus diagram
- Operator control station
- Touch panel input

## LCD Monitor Displays:

- System metering
- Menu-driven start-up procedures
- Menu-driven operating procedures
- History of events
- Load true power factor

## Additional Features:

- Password lock out for start/stop operation
- EPO button

## Real-Time Battery Monitoring

- Remaining battery time displayed for operator
- Integrated "DiamondSense" system automatically detects weak cells

## Superior Functions

- Automatic restart
- Automatic retransfer
- Converter walk-in function
- Battery monitoring
- 1-set "Form A & B" dry contacts of selectable items
- Large overload/overcurrent capacity
- Battery temperature compensation
- Adjustable DC cut-off
- Line drop compensation

## Quiet Operation

- 30-80kVA→65dB (A scale, 1m)

## Warranty

Standard warranty is two years, including parts and labor.

(NOTE: All information subject to change without prior notice.)

# Dimensions • Weights • Specifications

## UPS Units

kVA / kW	480V/ 208V Dimensions (W x D x H) (inch)	Weight (lbs)	480V/480V Dimensions (W x D x H) (in)	Weight (lbs)
30 / 24	34 x 31.5 x 70.9	2,050	34 x 31.5 x 70.9	2,050
50 / 40	34 x 31.5 x 70.9	1,580	34 x 31.5 x 70.9	1,580
80 / 64	34 x 31.5 x 70.9	1,980	34 x 31.5 x 70.9	1,980

### Notes:

- 30kVA weight includes internal batteries (580 lbs.)
- 30kVA battery back-up, 6 minutes.

## CLC Cabinets

kVA	Part Number	System Voltage	Dimensions ‡ (W x D x H) (inch)	Weight (lbs)
30	CLC-MMS1-030-480	480V/480V	36 x 29.5 x 71	540
30	CLC-MMS3-030-208	480V/208V	36 x 29.5 x 71	760
50	CLC-MMS1-050-480	480V/480V	36 x 29.5 x 71	540
50	CLC-MMS3-050-208	480V/208V	36 x 29.5 x 71	910
80	CLC-MMS1-080-480	480V/480V	36 x 29.5 x 71	540
80	CLC-MMS3-080-208	480V/208V	42 x 29.5 x 71	1,270

### Notes:

‡ Dimensions and weights are subject to change without notice. Consult MEPP1 for exact dimensions and weights.

- Consult MEPP1 UPS Engineering Department for "special" CLC cabinet configurations.

## Specifications: 2033D Series 30kVA – 80kVA

Rated Output kVA	30	50	80
Rated Output kW	24	40	64
<b>AC INPUT</b>			
Configuration	3 phase, 3 wire		
Voltage	480 V +15% to -15% (-30% can be operated)		
Frequency	60 Hz (45.4Hz to 65Hz)		
Reflected Current THD	4% typ. at 100% load; 7% typ. at 50% load		
<b>STATIC BYPASS INPUT</b>			
Configuration	3 phase, 3 wire		
Voltage	480 V ±10%		
Frequency	60 Hz		
<b>BATTERY</b>			
Type	Lead Acid		
Ride Through	Application specific		
Nominal Voltage	480 VDC		
Minimum Voltage	401 VDC		
Number of Cells	240		
<b>AC OUTPUT</b>			
Configuration	3 phase, 4 wire		
Voltage	120/208V, 277/480V		
Voltage Stability	±1%		
Frequency	60 Hz		
Frequency Stability	±0.05% in free running mode		
Power Factor	0.8 nominal		
Power Factor range	0.8 – 1.0 lagging (within output kW rating)		
Voltage THD	2% typical THD at 100% Linear Load; 5% typical THD at 100% non-linear load		
Transient Response	±3% at 100% load step; ±1% at loss /return of AC power; ±3% at load transfer to/from static bypass		
Transient Recovery	16.6 ms		
Inverter Overload	125% for 10 minutes, 150% for 1 minute		
System Overload	1000% for 1 cycle (with bypass available)		
Bypass Overload	150% for 1 minute		
<b>ENVIRONMENTAL</b>			
Cooling	Forced air		
Operating Temperature	32°F ~ 104°F (0°C - 40°C); Recommended 68°F - 86°F (20°C - 30°C)		
Relative Humidity	5% ~ 95% non-condensing		
Altitude	0 ~ 9000 feet no derating		

Consult Mitsubishi for Battery Cabinet Configurations.



The quality management system of Mitsubishi Electric Corporation Kobe Works has been approved to ISO9001:2000.

The quality management system is applicable to design, development and manufacturing of the UPS.

Mitsubishi Electric Power Products, Inc.  
Uninterruptible Power Supplies (UPS) Division  
547 Keystone Drive • Warrendale, PA 15086  
Phone: 724-772-2555 • Fax: 724-778-3146

[www.meppi.com](http://www.meppi.com)

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