7011A Series Single-Phase

UNINTERRUPTIBLE POWER SUPPLY SYSTEMS

(1/2/3/5.4/6/8/10/12kVA) Tower Type
(1.5/3kVA) Rackmount Type

ISO 9001 CERTIFIED

The Power Protection *Solution Provider* For Critical Operations

MITSUBISHI ELECTRIC

Power Failures Strike at the Heart of the Information Society

7011A Series Product Line • True On-Line, Double Conversion UPS

Mitsubishi Electric is the world's leading manufacturer of power transistors and is at the leading edge of technology in designing UPS systems. Coupled with its experience in bringing you the latest technological advances and innovative products, Mitsubishi Electric breeds confidence with its renowned quality and reliability.

The 7011A Series UPS system is that product; a true on-line, double conversion UPS system that will protect your equipment against any power problem. An unparalleled single-phase UPS system that was developed to protect the most critical of applications.

Rely on Mitsubishi Electric to give you the confidence you need to protect all of your critical equipment. No one understands better, the importance of protecting your equipment from undesired power problems and failures, than Mitsubishi Electric – your power protection solution provider.

IGBT Technology in the 7011A Series

Mitsubishi Electric is the world's leading manufacturer of advanced, high performance Insulated Gate Bipolar Transistors (IGBT). Mitsubishi utilized their IGBT market expertise by incorporating IGBT technology in the converter and inverter sections of the 7011A Series. These advanced, high performance transistors provide a variety of intelligent features, including:

- Large power capabilities
- High speed switching
- Low input current THD
- Low control power consumption
- Generator compatible
- Low audible noise

Low Heat Loss / High Efficiency

Use of IGBTs permits efficient high speed switching, thus reducing heat dissipation in the UPS system. (Higher efficiency means lower cost per kilowatt to the customer.)

On-Line Double Conversion UPS System

Mitsubishi Electric's 7011A systems are true on-line double conversion UPS systems that protect your equipment from any power problem. Whether power failures, power sags, power surges, undervoltage, electrical line noise, overvoltage, frequency variation, switching transients, or harmonic distortion attack your equipment, a 7011A UPS system will provide the most complete level of power protection and reliability available. The 7011A Series UPS system does more than just provide battery backup, it enhances the existing power. This dual conversion topology delivers many advantages for critical load applications:

- Wide input voltage window
- Wide input frequency window
- Input power factor correction
- 99.9% power protection
- Low input THD
- Low output THD
- Continuous regulated Output: frequency & voltage

Hot-Swappable Batteries

Replacement of batteries is made safe and easy with the hot-swap feature. There is no need to turn the UPS system off; battery change-out is performed while the system is running connected to AC power.

Rely on Mitsubishi's 7011A Series to Protect Your Critical Equipment

The 7011A Series ranges from 1kVA to 12kVA systems covering a wide spectrum of applications. From individual computers, to network server farms, to LAN gateways, bridges, routers, telecommunications systems, security systems, process control units, banking systems, or point of sales, the 7011A Series provides the most complete protection for voltage-sensitive equipment.

3-Year "Bumper to Bumper" Warranty

Mitsubishi Electric continues to provide unprecedented product warranty with the 7011A Series. Every 7011A Series UPS comes standard with a three-year product warranty. This warranty includes the batteries, making a bold statement regarding the technology and reliability of our UPS system.

Rackmount UPS Systems

The 7011A Series Rackmount on-line, double conversion UPS system provides a complete cost-effective, high-performance power protection solution for departmental servers or rackmounted network equipment like routers, switches, or hubs. This slim 19" system will enhance your equipment's performance and reliability significantly. Extended runtime can be accomplished through the addition of external rackmount battery cabinets.

Wide Input Range

The 7011A Series has extra wide input frequency (40Hz – 120Hz) for complete generator compatibility. Plus, extra wide input voltage (40V to 160V) enhances the UPS system's batteries performance dramatically in poor power conditions.

7011A Series has UL924 Listed Products

UL924 listing is the standard for emergency lighting and critical equipment to operate continuously for at least 90 minutes in the event of a power outage.

Hardwire Input/Output & Receptacle Panels

To meet diverse electrical requirements, input line cords and output load receptacle panels are offered for Plug & Play applications. Output load receptacle boxes are offered for quick and easy on-site connections. Standard receptacle panels are in stock, or contact Mitsubishi Electric for custom configurations.

Smart Battery Charger

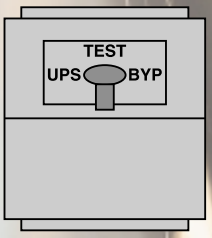
Every 7011A UPS system has a large, Smart 3-Step battery charger inside. The 7011A battery chargers are designed to prolong the life of the batteries and recharge the UPS system quicker than standard one-step chargers. A quicker recharge time means that the 7011A system will be ready faster for the next power outage.

Extended Runtimes Available

Where longer runtimes are in demand, the 7011A Series accommodates a variety of applications and needs. By simply adding external battery cabinets, your runtime will be considerably increased to meet those specific needs.

Maintenance Bypass Switch

Each 7011A Series UPS system includes a static Maintenance Bypass Switch (MBS). For applications where you need to isolate the input and output power from the UPS system, to allow service personnel to perform routine maintenance and testing without interrupting power to the connected critical loads, Mitsubishi Electric offers an external MBS system. This 3-position make-before-break MBS is available for all 7011A Series (1kVA to 12kVA) UPS systems in a wall mounted NEMA 1 enclosure.

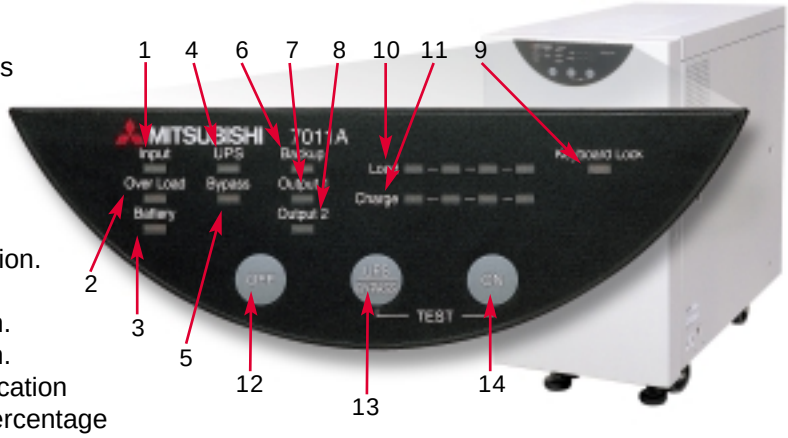


Functional Display Provides Information Diagnostics

Informative and Functional Display – (1.0kVA – 3.0kVA)

The front panel status indicators allow the operator to monitor the function and condition of the UPS. Bypass switch, test, and LED indicators are present.

1.0kVA to 3.0kVA UPS Systems

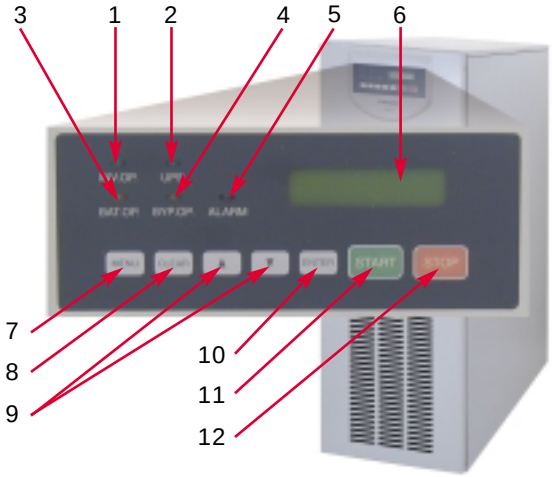


1) Input – Indicates the input power status
2) Over Load – Output overload status indication
3) Battery – Warns that the battery will soon reach the end of its life.
4) UPS – Lit to indicate UPS operation.
5) Bypass – Lit to indicate bypass operation.
6) Back Up – Backup operation status
7) OUTPUT1 – Output 1 status indication.
8) OUTPUT2 – Output 2 status indication.
9) Key Board Lock – Key lock status indication
10) Load – Indicates the load current in percentage
11) Charge – Level meter which indicates the battery charge status.
12) OFF – Used to turn the UPS off.
13) UPS/BYPASS – Switch between UPS operation and bypass operation.
14) ON – Used to start the UPS.

LCD Display/Instructive Indicators – (5.4kVA – 12kVA)

A user-friendly LCD display and LED indicators display the UPS system's operating parameters and alarms. This information allows the user to analyze the condition and performance of the system.

5.4kVA to 12.0kVA UPS Systems



1) Load on Inverter (Green)
2) UPS – UPS is ready to supply the load
3) Load On Bypass – Load being supplied by static bypass
4) Battery Operation – AC Power Failure
5) Alarm (Red) Fault mode, input abnormal, overload
6) LCD Display – Shows operations of UPS
7) Menu – User menu widow – User Set-up
8) Clear – Used with the LCD
9) Up/Down – Chose events on the LCD
10) Enter – Used with the LCD menu
11) UPS Start – Starts UPS to supply load from Inverter
12) UPS Stop – Stop the UPS system

System Dimensions: (1.0kVA – 3.0kVA)

	7011A-10	7011A-20	7011A-30	7011AR-15-B	7011AR-30-B
Width	6.7 in.	9.8 in.	9.8 in.	19 in.	19 in.
Depth	17.8 in.	20.8 in.	20.8 in.	17 in.	24 in.
Height	10.6 in.	19.7 in.	19.7 in.	5.14 in.	6.89 in.
Weight	45 lbs.	110 lbs.	135 lbs.	64 lbs.	148 lbs.

System Dimensions: (5.4kVA – 12.0kVA)

	7011A-54	7011A-60	7011A-80	7011A-100	7011A-12.0
Width	13.8 in.	13.8 in.	13.8 in.	13.8 in.	13.8 in.
Depth	29.9 in.	29.9 in.	29.9 in.	29.9 in.	29.9 in.
Height	27.8 in.	27.8 in.	40.6 in.	40.6 in.	40.6 in.
Weight	307 lbs.	307 lbs	507 lbs.	507 lbs.	507 lbs.

*Matching battery cabinets are available for extend runtime applications.

UPS Monitoring Equipment & Software

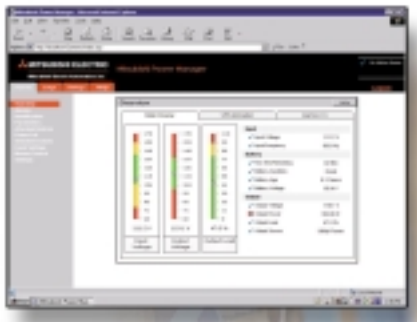
DiamondLink is an advanced, user-customizable power monitoring, management, and shutdown software designed to provide information about the power conditions of the UPS system. DiamondLink will monitor the health and status of your UPS system and, when critical events occur, will notify you and perform a graceful, unattended shutdown. DiamondLink can be configured to perform appropriate actions when an event is detected. The user configurable actions include:

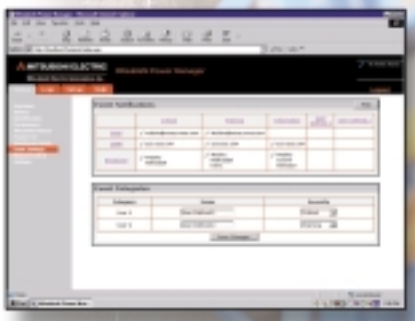
- Broadcasting – Send event messaging to managers on your system
- E-mail – Send e-mails or pages as events occur with your UPS system
- SNMP Messaging – Send SNMP messaging to NMS managers
- Operating System Shutdown – Shutdown your servers when power is running low

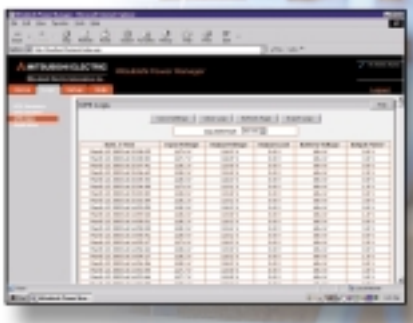
The NetCom works with all major NMS systems on Ethernet –
NetCom works with the most widely used Network Management Systems: HP OpenView, Novell ManageWise, Sun NetManager, IBM NetView, and many more.

The **NetCom** 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. **The NetCom features:**

- **Remote UPS status monitoring –** Monitor a remote UPS system using an RS-232 Cable to the NetCom 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 and control 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.

7011A Series (1.0kVA to 3.0kVA) Advantages

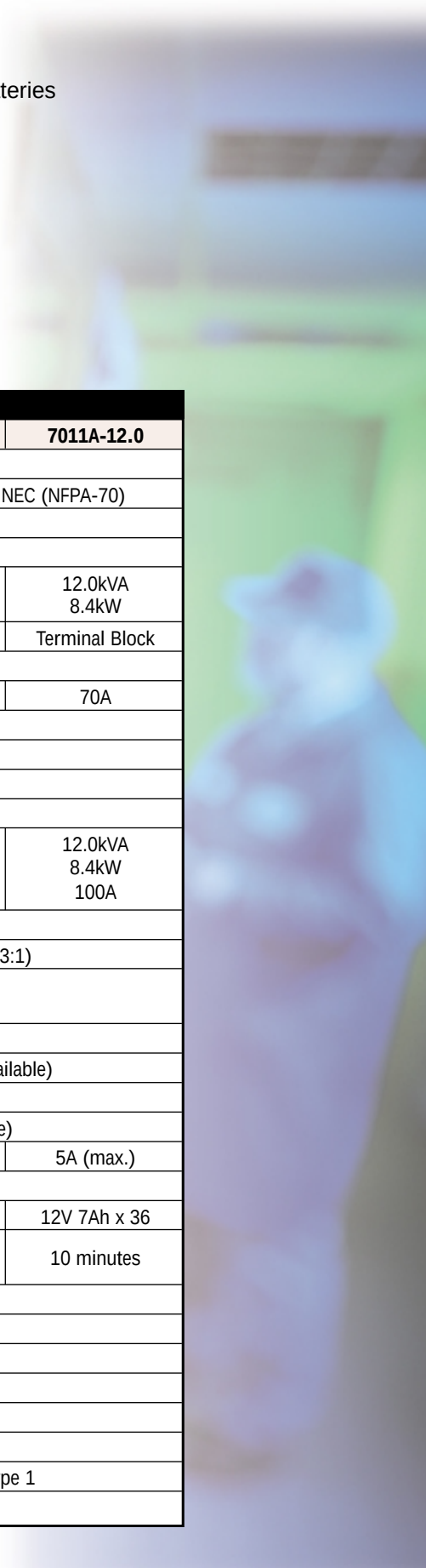
- New IGBT technology in both the rectifier and inverter
- True double conversion UPS system
- Extra wide input voltage range, 40V to 160V, which enhances batteries' performance dramatically
- Extra wide input frequency range, 40Hz to 120Hz, for complete generator compatibility
- Unprecedented 3-year "Bumper to Bumper" product warranty, including the batteries
- Internal Maintenance Bypass Switch
- Smart 3-Step battery charger
- Isolation transformer UPS systems are available
- Auto-restart standard
- 19" rackmount system available

Specifications: 7011A Series (1kVA – 3kVA)

		TOWER SYSTEMS			RACKMOUNT SYSTEMS	
Model Type		**7011A-10**	**7011A-20**	**7011A-30**	**7011AR-15-B**	**7011AR-30-B**
Topology		Single Phase, True On-Line, Double Conversion				
Certifications		UL924, UL1778, cUL, FCC Class A, ISO9001, IEEEC62-41-1991, NEC (NFPA-70)				
Input	**Voltage**	40V-160V				
	Frequency	40-120Hz				
	Capacity (max)	1.0kVA 700W	2.0kVA 1400W	3.0kVA 2100W	1.5kVA 1050W	3.0kVA 2100W
	Input	15A Plug	Terminal Block	Terminal Block	15A Plug	Terminal Block
	Power Factor	0.95 over (at full load)				
	Circuit Protection	15A	35A	40A	20A	40A
Output	**Voltage**	Single-Phase: 100V - 120V (selectable)				
	Frequency	50/60Hz ± 0.01%				
	Output Waveform	Sine wave				
	Transfer Time	Zero transfer time				
	Capacity	1.0kVA (700W) 8.3A	2.0 kVA (1400W) 16.6A	3.0kVA (2100W) 24.9A	1.5kVA (1050W) 12.5A	3.0kVA (2100W) 24.9A
	Rated Load Power Factor	0.7				
	Permissible Inverter Peak Current	300% of rated current effective value (crest factor is 3.0)				
	Transient Response	± 3%				
	Harmonic Distortion	3% or less (linear load) 1% (typical)				
	Overload Capacity	110% for 30 seconds				
	Common Mode Noise	< 0.5V Peak				
	Receptacles	(6) 5-15R	(6) 5-15R & Terminal Block	(6) 5-15R & Terminal Block	(6) 5-15R	(6) 5-15R & Terminal Block
Battery	**Size of Battery Charger**	1.58A	3.08A	4.11A	2.26A	4.11A
	Type (Life)	Sealed lead-acid battery (5 years)				
	Quantity	12V 5Ah x 5	12V 17Ah x 5	12V 17Ah x 5	12V 7.2Ah x 5	12V 17Ah x 5
	Backup Time	10 min (at full load PF=0.7)				
	Recharge Time	90% after 8 hours				
Environment	**Operating Temperature**	0 to 40°C (32 to 104°F) optimal at 25°C				
	Operating Humidity	5 to 95% (no condensation)				
	Audible Noise	45db at 1m (3.3 ft) from front panel				
	Altitude	Less than 3000m (9000ft)				
Design	**Enclosure**	Enclosure of unit is metal meeting NEMA 1 and UL Type 1				
	Emergency Power Off	Standard (Terminal Contacts)				

7011A Series (5.4kVA to 12.0kVA) Advantages

- New IGBT technology in both the rectifier and inverter
- True double conversion UPS system
- Extra wide input and frequency range for complete generator compatibility
- Unprecedented 3-year “Bumper to Bumper” product warranty, including the batteries
- Front LCD display for diagnostics of the UPS system
- UL924 listed
- Custom output receptacle panels available
- Internal Maintenance Bypass Switch
- Smart 5A 3-Step battery charger
- Auto-restart standard



Specifications: 7011A Series (5.4kVA – 12.0kVA)

		TOWER SYSTEMS				
Model Type		**7011A-54**	**7011A-60**	**7011A-80**	**7011A-100**	**7011A-12.0**
Topology		Single Phase, True On-Line, Double Conversion				
Certifications		UL924, UL1778, cUL, FCC Class B, ISO9001, IEEEC62-41-1991, NEC (NFPA-70)				
Input	**Voltage**	240/120V (1 Phase), 208/120V (2 Phase)				
	Frequency	50/60 Hz +/- 5%				
	Capacity (max)	5.4kVA 3.8kW	6.0kVA 4.2kW	8.0kVA 5.6kW	10.0kVA 7.0kW	12.0kVA 8.4kW
	Input	Terminal Block	Terminal Block	Terminal Block	Terminal Block	Terminal Block
	Reflected Current THD	< 4% at 100% load				
	Circuit Protection	35A	35A	45A	60A	70A
Output	**Voltage**	240/120V or 208/120V or 120/120V				
	Frequency	50/60Hz ± 0.01%				
	Output Waveform	Sine wave				
	Transfer Time	Zero transfer time				
	Capacity	5.4kVA 3.8kW 50A	6.0kVA 4.2kW 50A	8.0kVA 5.6kW 66.7A	10.0kVA 7.0kW 83.3A	12.0kVA 8.4kW 100A
	Rated Load Power Factor	0.7				
	Crest Factor Capabilities	300% of rated current effective value (crest factor is 3:1)				
	Transient Response	+/- 3% typical load +/- 1% at loss/return of AC power				
	Harmonic Distortion	2% or less (linear load) 1% (typical)				
	System Overload	150% for 1 minute, 1000% for 1 cycle (with bypass available)				
	Bypass Overload	150% for 1 minute, 1000% for 1 cycle				
	Receptacles	Terminal Block (optional receptacle panels available)				
Battery	**Size of Battery Charger**	5A (max.)	5A (max.)	5A (max.)	5A (max.)	5A (max.)
	Type (Life)	Sealed lead-acid battery (5 years)				
	Quantity	12V 7Ah x 18	12V 7Ah x 18	12V 7Ah x 36	12V 7Ah x 36	12V 7Ah x 36
	Backup Time @ 100% load	13 minutes	10 minutes	15 minutes	12 minutes	10 minutes
	Recharge Time	90% after 8 hours, 100% after 24 hours				
	Nominal Voltage	216Vdc				
Environment	**Operating Temperature**	0 to 40°C (32 to 104°F) optimal at 25°C				
	Operating Humidity	5 to 95% (no condensation)				
	Audible Noise	45db at 1m (3.3 ft) from front panel				
	Altitude	Less than 4000m (12000 ft)				
Design	**Enclosure**	Enclosure of unit is metal meeting NEMA 1 and UL Type 1				
	Emergency Power Off	Standard (Terminal Contacts)				

7011A Series Single-Phase

UNINTERRUPTIBLE POWER SUPPLY SYSTEMS

(1/2/3/5.4/6/8/10/12kVA) Tower Type
(1.5/3kVA) Rackmount Type

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