

# UPS MetaSystem



## Rack line



[www.metasystem.it](http://www.metasystem.it)

EN

## Structured cabling solutions

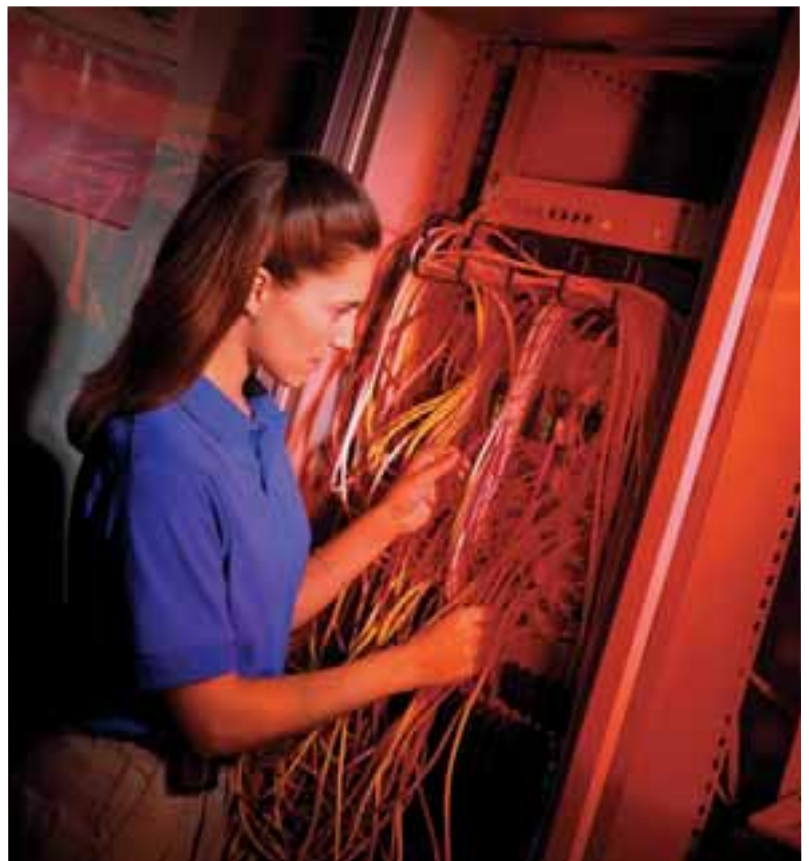


Local networks, LAN, WAN and structured cabling are all terms that have recently become familiar even to unskilled persons. For the past few years, local networks and distributed data processing systems have become increasingly more widespread. In the past, it was normal for desktop PCs to operate in a self-contained way. Nowadays however, not to share hardware and software resources is considered unthinkable and this not just in the office context but at building or headquarters level (campus).

Data transmission on the one hand, voice transmission on the other, both allow companies to integrate all their

present and future resources as local networks, access monitoring, presence detection, closed-circuit TV, security and fire-prevention, transmission of images, telefaxes and videoconferences. All this via a single cabling system formed by active and passive components able to vehicle the transmission of information in all its forms and everything compatible with products, systems and multivendor applications in an open and flexible way.

This need for total integration has given rise to structured cabling, meaning high costs for companies. And these investments must be dedicated in order to achieve the utmost efficiency, reliability, flexibility and transmission speed in the overall system. As always, reliability is an important aspect and it becomes even more so in a context where the complex nature of the interconnection systems is such that a mere false contact can mean that the whole company comes to a stop. Star networks, whether they are Main, Intermediate or Horizontal Cross Connect must be protected, as the Equipment Room must be, against all the interference that afflicts the electric power supply and all the dangers lying in wait during a blackout or if the devices are damaged.



## 19" rack systems



The UPS models in the Rack format have been designed to meet all these requirements. They are suitable for industrial applications and for installations in the cabinets of star networks. They are ideal when it comes to protecting active components without which the cabling system loses its value. Router, hub, switch and modem protection is often forgotten or sacrificed in order to protect the various servers. The star arrangement of the networks means that protecting the servers without protecting the crucial centers of communication avoids loss of data, crashes or damage to the hardware in the actual servers themselves without, however, allowing the connected users to operate and without enabling them to save and

correctly terminate their work. A powered server to which no one is connected is no longer a company resource. And when it comes to integrated networks, this is a contradiction that should not be underestimated.

The solutions in the standard 19" format are highly advantageous when it comes to protecting electronic instruments in the industrial sector, electro-medical equipment or Information & Communication Technology, where installation of components in rack cabinets (as occurs in the new servers, interconnection cabinets, measuring instruments and system monitoring equipment) is becoming increasingly more usual day by day. This rack solution includes notable advantages in terms of compactness, linearity and design because it allows all the equipment to be housed in a single cabinet, limiting the space occupied on the ground.

In the case of UPS, the advantages become even more evident when the autonomy of the uninterruptible power supply unit must be expanded. The addition of batteries typically leads to the installation of dedicated cabinets that are positioned one beside the other, taking up precious space in the work area or preventing other equipment from being installed.

When it comes to UPS in the 19" format, autonomy expansion merely involves the addition of a cassette requiring only for a few rack units. This means a notable saving in space and a reduction in overall costs.



# MetaSystem UPS

## Quality



MetaSystem has been actively pursuing the path towards Quality for many years, confident that the future can only be tackled by way of optimum efficiency.

The validity of the company's policy was confirmed by the certification of MetaSystem's Quality System to UNI EN ISO 9001 standards in 1996 (design - production - sales - service) standard update: UNI EN ISO 9001:2000.

The additional certifications awarded by the world's leading motor vehicle manufacturers, as well as current upgrading to ISO 14000 standards, have contributed to the continuing enhancement of already high standards in production. Quality is not just an objective, therefore, but an essential prerequisite for the daily application of every resource.



Production premises for Power products



UPS production lines - 1989

## Technology

MetaSystem has been manufacturing UPS for over 25 years and from the very outset the company motto was 'Our technology at the service of your safety'.

This is why MetaSystem believes in on line - dual conversion technology, which safeguards the highest levels of protection; in actual fact, we were the first to launch modular, redundant UPS on the market back in 1993 with our HF series.



Anechoic room - R&D building

The continuity of operation guaranteed by redundancy and the assured expandability of modular technology opened new horizons in the use of UPS for critical applications.



UPS Production - 2002



SMD Production - 2003

## Power Strip



### Power Strip: the best answer when lack of space and electrical continuity are a problem.

This power strip conforms to the 19" rack standards and houses a 500 VA UPS unit. **Power Strip** is the first solution to these problems that includes a powering bar protected by an UPS, thus ensuring total safeguards against blackouts while providing an orderly unit for use where space is at a premium.

It only occupies 2 rack units and is 27 centimeters in depth. It includes 6 universal sockets (Italian/Shuko) slanting at 45%, thus making it easy to connect any plug. Devices powered by the electricity main with a multiple socket alone, shut off their communications and block the entire network.

It is of fundamental importance to provide protection and ensure uninterrupted power is supplied to the various devices (hubs, routers, switches) even when the Racks are small.

Technical Features	
Output Nominal power (VA)	500
Output Active power (W)	300
Input Nominal Voltage	230 V
Input Voltage Range	160 ÷ 280 V
Input Frequency	50 Hz ± 3%
Output Nominal voltage (mains mode)	230 V ± 10%
Output Nominal Voltage (battery mode)	230 V ± 5%
Wave form in battery mode	Partilised (peak and RMS values as sinewave)
Autonomy time (minutes) at: 50% of load 80% of load	13 7
Batteries	1 pc 12V 7Ah sealed, lead acid maintenance free
Size (W x H x D) mm.	483 (14") x 89 (2U) x 270
Net Weight (Kg)	6,5
Certifications	EN62040-1-1 - EN 50091-2 - EN62040-3



### Technology

**Bi-Twice** is a series of on line dual conversion UPS that consequently offer

- absolutely zero switchover time
- total continuity of protection
- perfectly sinusoidal wave form that remains identical, whether in mains or battery mode
- suppression of any type of power problem, whether in amplitude or frequency

### Power

**Bi-Twice** offer the performance that is characteristic of top-of-the-range, on line products though their small size, their 800, 1000 and 1250 VA power ratings and competitive price make them perfect even for applications which are usually the domain of line interactive UPS.

### Philosophy

Their special case makes it possible to convert the configuration of these UPS from tower to rack, and vice-versa, thanks to a bespoke installation kit. **Bi-Twice** are actually tower UPS with an extremely small footprint (i.e. they take up a minimum of floor space) and their long, thin and slim shape means they won't steal space even if they are placed underneath a desk. The same UPS can be installed in a rack cabinet with a very simple piece of equipment.

The rack cabinet installation brackets are supplied as standard and replace the feet of the tower version in a few seconds. The rack version only takes up two units.

### Flexibility

The performance of **Bi-Twice** UPS and their technical specifications make these products extremely flexible. **Bi-Twice** can be used to protect small networks, servers, data and interconnection cabinets, office automation and networking, or even industrial automation, safety and surveillance: finding space for them definitely won't be a problem, either on the floor or in a rack.



## Technical Features

	Bi-Twice 800	Bi-Twice 1000	Bi-Twice 1250
Technology	On line dual conversion		
Wave form in battery mode	Sinewave		
Nominal power	800 VA	1000 VA	1250 VA
Active power	560 W	700 W	875 W
Input voltage	230 V		
Input voltage range	184 ÷ 264 V with 100% load 100 ÷ 264 V with 50% load		
Input frequency (Hz)	50/60 Hz ± 2% with automatic recognition		
Input power factor	>0.99 with 80% load		
Output voltage	230 V		
Output voltage distortion	< 1%		
Output frequency	50/60 Hz (± 1% in battery mode)		
Batteries	3 pcs 12V 7.2 Ah sealed, lead-acid battery maintenance free		
Back up (minutes)			
50% load	27	22	16
80% load	15	10	8
Computer interface	RS232		
Output sockets	Multiple socket with n° 3 Schuko sockets		
Size (W x H x D) mm	TOWER	80 x 450 x 500	
	RACK	483 x 88.1 (2 U) x 500 (total depth 540)	
Net Weight (Kg)	12		
Certifications	EN 62040-1-1, EN 50091-2, EN 62040-3		

## HF Millennium Rack

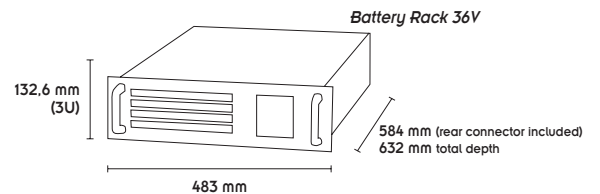
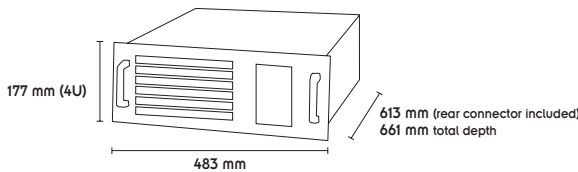


The HF Millennium Rack family consists of 2 models, HFR 810 and HFR 820, with 1.000 2.000 VA power ratings, respectively. Double conversion on line achieved with passing neutral High Frequency technology, these UPS comprise 1.000 VA power modules connected in parallel in compliance with the

MetaSystem HF philosophy.

This is why the HF 820 model is redundant: a broken power board will not impair the operation of the UPS which will continue to function correctly at a lower power. Both models are equipped with three interfacing ports. The former is an RS 232 serial interface that allows the UPS Communicator diagnostic and shutdown software (for Windows and Linux environment - free download from [www.metasystem.it](http://www.metasystem.it) web site) or the UPS Supervisor shutdown software (optional, for all operating systems) to be used.

The other ports are two logic level contact interfaces allowing use of the HF1 programmable remote control (see accessories section), computer connections to be made and load piloting (also power loads, thanks to the relay interface, see accessories section) to be carried out.



## HF Top Line Rack

The HF Top Line Rack family includes 4 models which cover the 1.000 to 4.000 VA rated power bracket in 1.000 VA steps.

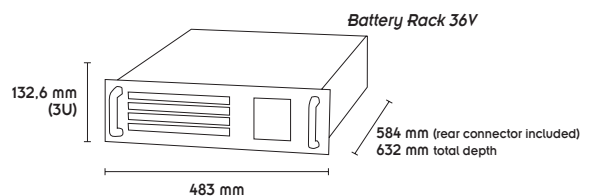
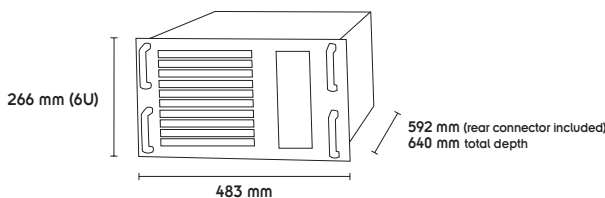
The HF Top Line Rack series features all the characteristics already described for the HF Millennium Rack models while also being expandable, modular and redundant. Expandability means that the power rating of each model (with the exception of 940 and up to 4.000 VA) can be increased at any time without particular set-ups or calibrations being required: the UPS automatically reconfigures as soon as it recognizes the added power board.

Modularity means that the UPS consists of several identical 1.000 VA power modules. Connected in parallel, these achieve total resource sharing. All the critical circuit blocks of the UPS (PFC, inverters, battery chargers, boosters, etc.) are reproduced on each board.

Redundancy is a result of modularity: since the modules are connected in parallel and equipped with all the basic circuits required to operate the UPS, breakage of one of them will not compromise the operation of the UPS itself, which will signal the fault but continue to deliver output power in the right way.

All models are equipped with RS 232 serial interface and two interface ports with logic level signals. The former is an RS 232 serial interface that allows the UPS Communicator diagnostic and shutdown software (for Windows and Linux environment - free download from [www.metasystem.it](http://www.metasystem.it) web site) or the UPS Supervisor shutdown software (optional, for all operating systems) to be used.

Performances of a level superior to the norm make these UPS ideal for critical applications where quality and an absolutely uninterruptible power supply are essential requisites.



## Technical Features

	HFR 810	HFR 820	HFR 910	HFR 920	HFR 930	HFR 940
Type	On line dual conversion					
Operating power on switching load	1400 VA	2800 VA	1400 VA	2800 VA	4200 VA	5600 VA
Nominal power	1000 VA	2000 VA	1000 VA	2000 VA	3000 VA	4000 VA
Active power	700 W	1400 W	700 W	1400 W	2100 W	2800 W
Nominal input voltage	184 to 264 V at 100% of the load 110 to 264 V to 50% of the load					
Nominal input frequency	50 / 60 Hz $\pm 2\%$ (selected by the user)					
Input power factor	$>0,99$ at 80% of load					
Nominal output voltage (mains)	230 V $\pm 1\%$					
Nominal output voltage (battery)	230 V $\pm 1\%$					
Nominal output frequency (battery)	50/60 Hz $\pm 0,1\%$					
Nominal PF range of load	0,7 to 1					
Overload capacity (mains)	200% for 5 sec. 150% for 30 sec.					
Overload capacity (battery)	160% for 15 sec.					
Autonomy in minutes at 80% of nominal load	10 min.					
50% of nominal load	22 min.					
Batteries	3 batteries 12 V 7 Ah maintenance free sealed lead acid type for each power module					
Computer interface	RS 232, 2 outputs with logic signals					
Size (W x H x D) in mm	483 x 177 (4U) x 613			483 x 266 (6U) x 592		
Net Weight (kg)	25	35	28	39	50	61
Protection degree	IP 20					
Certifications	EN 62040-1-1, EN 50091-2, EN 62040-3					

## MegaLine Rack



Not only do the **MegaLines Rack 19"** offer all the standard features of the best on line - dual conversion products, they also offer top-of-the class performance and functions.

They are available in two families, with either a single or a double cabinet. The 4 single cabinet models can supply from 1250 to 5000 VA, and can house a maximum of 4 power boards and 4 battery kits. Additional batteries can be housed in bespoke cabinets that are easily connected up thanks to their standard presetting for the expansion of autonomy.

- **Effective acoustic and visual signals**, even from a considerable distance
- **Static bypass**
- **External maintenance bypass** (optional)
- **Cold charging**
- **Real time confirmation of residual autonomy and charge status on the LCD display**

### Input section:

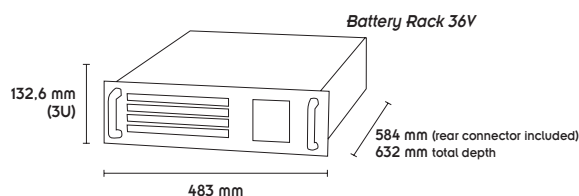
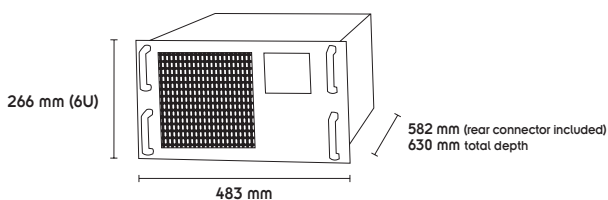
- Input PF > 0.98 whatever the percentage of load
- THD of input current < 3%
- Wide range of input voltage and frequency
- 50 Hz or 60 Hz operating frequency with automatic identification
- 50 Hz in - 60 Hz out frequency conversion or vice versa
- Extension of the input frequency range for operation with gen-sets
- DC start

### Output section:

- **Eco mode** operation (energy saving)
- **Load-waiting mode** operation (protection on demand)
- Output voltage can be adjusted in 1-volt steps on the front panel
- Low noise levels
- Measurement of internal and external temperatures
- Ventilation control based on temperature and load
- Preset for remote emergency switch-off

- **Class A/B (immunity emission):**

All the MegaLine rack models comply with the most stringent standards in terms of both **emission** and **immunity** to electromagnetic interference, so that they can be used for any application, in either civil or industrial environments **Shutdown software** can be downloaded free of charge off our website.



## Technical Features

	MegaLine Rack 1250	MegaLine Rack 2500	MegaLine Rack 3750	MegaLine Rack 5000
Output Nominal power (VA)	1250 VA	2500 VA	3750 VA	5000 VA
Output Active power (W)	875 W	1750 W	2625 W	3500 W
Input Nominal Voltage	230 V			
Input Voltage range	180 ÷ 264V at 100% of load - 110÷264V at 50% of load			
Input Frequency	50 / 60 Hz autosensing			
Input Power factor	>0,99 at 20% of load			
Input current THD	< 3%			
Number of phases	single phase			
Output Nominal voltage (mains mode)	230 V ± 1%			
Output Nominal frequency (mains mode)	50/60 Hz synchronised			
Output Nominal Voltage (battery mode)	230 V ± 1%			
Output Nominal frequency (battery mode)	50/60 Hz ±1%			
Number of phases	single phase			
Wave form in battery mode	pure sinewave			
Autonomy time (minutes) at 50% of load 80% of load	20 11			
Batteries	3	6	9	12
Computer Interface	RS 232 2 logic levels ports			
Special Functions and Operation modes	Eco Mode user selectable output voltage in step of 1 V load waiting mode frequency converter			
Available for download	Windows / Linux diagnostic and shutdown software			
Size (W x H x D) mm.	483 x 266 (6U) x 582			
Net Weight (kg)	23,5	34	43	50
Certifications	EN62040-1-1- EN 50091-2 - EN62040-3			
Installed power boards	1	2	3	4
Available power slots	3	2	1	-
Installed battery kits	1	2	3	4
Available battery slots	3	2	1	-
Battery charger slots	1 - in dedicated battery cabinet (optional)			

### REDUNDANCY and POWER EXPANSION KIT

Every company reaches the point in which it must expand its computer network, as well as changing the UPS that protects it. Thanks to HF Top Line Rack and MegaLine Rack, the cost of upgrading can be largely cut down.

The power of HF Top Line Rack (with the exception of HFR 940) and MegaLine Rack (with the exception of MegaLine Rack 5000) can be increased whenever required by simply installing an additional power board (see power expansion kit below) and relative battery kit (see operating autonomy kit).

A further advantage is that REDUNDANT configurations can be made (installation of N+1 boards to obtain power supplied to the load equal to N boards), able to guarantee full protection if faults should occur.



Power expansion kit for the HF Top Line Rack: PW1000  
Power expansion kit for the Megaline Rack: PW1250

### MANUAL BYPASS - BP/1

The HF Top Line Rack and MegaLine Rack models can be equipped with a manual servicing bypass, BP/1, which allows all the servicing operations (replacement of batteries, power modules, etc.) to be carried out in the "HOT SWAP" mode, i.e. without having to shut off the power supply and without creating loss of voltage. This bypass model enables the user to carry out all the manoeuvres to which the UPS must be subjected (maintenance, upgrading, power and autonomy expansion) in total safety.

Very simple to install, it substitutes the rear connector and can be easily removed from the unit.



### REMOTE CONTROL - HF1

All the UPS Rack Line models can be used in conjunction with remote control HF1, allowing them to be powered and switched off (in the remote manual mode) and the actual time these operations take place to be programmed (thanks to the built-in timer).

The leds also display the main status information concerning the UPS (mains or battery operation, autonomy reserve, overload, incorrect connection of the neutral connector).





Battery Kit for UPS Cabinet

### AUTONOMY EXPANSION KIT

#### KB 36/1 - KB 36/2

The autonomy of your HF Top Line Rack can be increased in a very simple and functional way by merely installing a battery kit in the UPS cabinet (up to four KB 36/1 kits). KB 36/2 kits can be housed in the Battery Rack for further autonomy expansions. The kits comprise three 12 V 7 Ah batteries connected in series, with a bracket for fixing and fastening screws.



Battery Kit for Battery Rack

#### KB MEGALINE/1 - KB MEGALINE/2

The autonomy of your MegaLine Rack can be increased in a very simple and functional way by installing battery kits in the UPS cabinet (up to four KB Megaline/1 kits). KB Megaline/2 kits can be housed in the Battery Rack for further autonomy expansions. The kits comprise three 12 V 9 Ah batteries connected in series, with a bracket for fixing and fastening screws.

### BATTERY CHARGER – CB 36

When there are lots of additional batteries and a dedicated cabinet is required, a supplementary battery charger can also be connected so as to speed up the overall recharging time.

All battery cabinets are pre-engineered so that this accessory can be quickly installed. The battery chargers have a 36V power rating for HF Top Line Racks, HF Millennium Racks and the MegaLine Racks.



### RELAY INTERFACE

This interface signals the operating status of HF Top Line Racks, HF Millennium Racks and MegaLine Racks by making or breaking the insulated contacts of a relay. The interface handles the following indications:

- mains operation
- battery operation
- low batteries (autonomy reserve)
- faulty operation (overload or an internal fault).

Maximum capacity of relay contacts: 1A (150 Vdc or 125 Vac).



To expand the operating autonomy of the HF Millennium Rack, HF Top Line Rack and Megaline Rack families, refer to the table that gives the number of battery racks required for making the configuration, which depends on the model and load percentage.

Autonomy time at 80% of load								
N° Battery Kit	4	8	12	16	20	24	28	32
N° Battery Rack*	1	2	3	4	5	6	7	8
<b>HFR Top Line 910</b> <b>HFR Millennium 810</b> <b>(1000 VA)</b>	1h 22'	2h 47'	4h 22'	6h 03'	7h 49'	9h 40'	11h 35'	13h 34'
<b>HFR Top Line 920</b> <b>HFR Millennium 820</b> <b>(2000 VA)</b>	44'	1h 22'	2h 03'	2h 47'	3h 33'	4h 22'	5h 12'	6h 03'
<b>HFR Top Line 930</b> <b>(3000 VA)</b>	32'	56'	1h 22'	1h 49'	2h 17'	2h 47'	3h 18'	3h 49'
<b>HFR Top Line 940</b> <b>(4000 VA)</b>	26'	44'	1h 02'	1h 22'	1h 42'	2h 03'	2h 25'	2h 47'
<b>Megaline Rack 1250</b>	1h 11'	2h 22'	3h 40'	5h 02'	6h 27'	7h 56'	9h 27'	11h 01'
<b>Megaline Rack 2500</b>	39'	1h 11'	1h 46'	2h 22'	3h	3h 40'	4h 20'	5h 02'
<b>Megaline Rack 3750</b>	29'	49'	1h 11'	1h 34'	1h 58'	2h 22'	2h 47'	3h 13'
<b>Megaline Rack 5000</b>	24'	39'	54'	1h 11'	1h 28'	1h 46'	2h 04'	2h 22'

Autonomy time at 100% of load								
N° Battery Kit	4	8	12	16	20	24	28	32
N° Battery Rack*	1	2	3	4	5	6	7	8
<b>HFR Top Line 910</b> <b>HFR Millennium 810</b> <b>(1000 VA)</b>	1h 03'	2h 09'	3h 21'	4h 39'	6h 01'	7h 27'	8h 55'	10h 26'
<b>HFR Top Line 920</b> <b>HFR Millennium 820</b> <b>(2000 VA)</b>	33'	1h 03'	1h 35'	2h 09'	2h 44'	3h 21'	4h	4h 39'
<b>HFR Top Line 930</b> <b>(3000 VA)</b>	24'	43'	1h 03'	1h 24'	1h 46'	2h 09'	2h 32'	2h 56'
<b>HFR Top Line 940</b> <b>(4000 VA)</b>	20'	33'	48'	1h 03'	1h 18'	1h 35'	1h 51'	2h 09'
<b>Megaline Rack 1250</b>	54'	1h 49'	2h 49'	3h 52'	4h 58'	6h 06'	7h 16'	8h 28'
<b>Megaline Rack 2500</b>	30'	54'	1h 21'	1h 49'	2h 18'	2h 49'	3h 20'	3h 52'
<b>Megaline Rack 3750</b>	22'	38'	54'	1h 12'	1h 30'	1h 49'	2h 09'	3h 28'
<b>Megaline Rack 5000</b>	18'	30'	42'	54'	1h 07'	1h 21'	1h 35'	1h 49'

\* see accessories page

## After Sales Assistance



## 2 Year Guarantee

High technology products with tried and tested reliability allow MetaSystem to guarantee **HF Top Line Rack, HF Millennium Rack and MegaLine Rack** for a period of 2 years from the date of delivery.

## Telephone Service



Contact our specialists for any queries and any explanations regarding equipment operation, or advice on power dimensions.

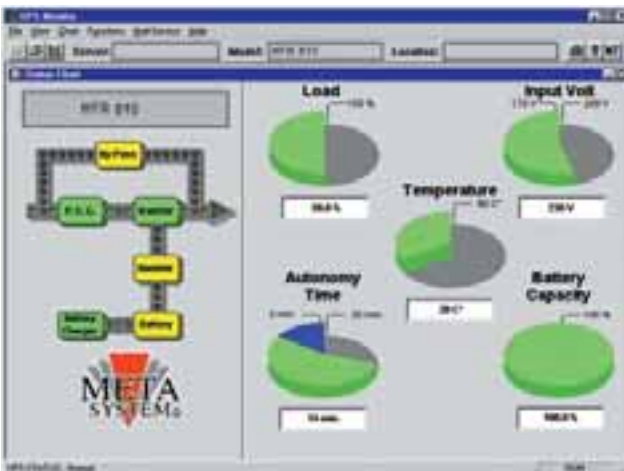
## Software

### Free Download Software

The UPS Communicator software is compatible with all the UPS units provided with RS232 interface, in the Rack family. UPS Communicator, which can operate with all Windows and Linux systems, allows you to access the operating data of the UPS unit and to adjust and set-up the special functions. It features a help in line facility allowing the software to be used in a user-friendly way. UPS Communicator can also operate in background process mode for shutdown purposes. It is also able to control the multiserver shutdown process and manage the system in remote mode. Free download from MetaSystem web site.

### Shutdown Software

The UPS SuperviSor shutdown software, available on request for all UPS units of the Rack family, is able to make an orderly shutdown of the operative system and turn off the UPS. It can be used with all the most common operative systems (Windows, Novell, Linux...) and with all the most widespread Unix platforms. It is also able to control the multiserver shutdown process and monitor and manage the system in remote mode, also via the Internet.



# Uninterruptible Power Supplies

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