

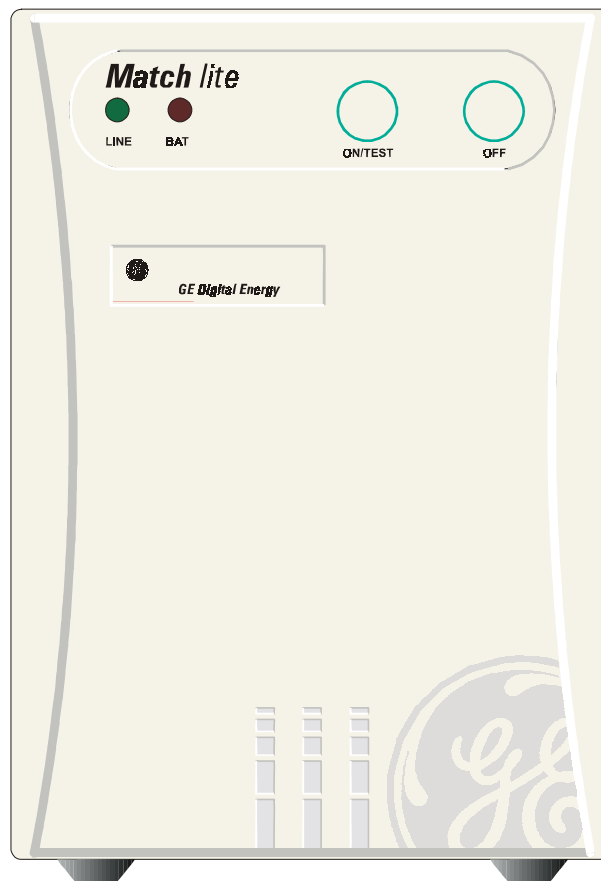


GE Digital Energy

Product Description

Match lite

Line-Interactive Uninterruptible Power Supply
500VA



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Match lite UPS

Technology for the Digital World.

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1 - Introduction

The **GE (General Electric) Digital Energy Match lite UPS** series is a compact, modern, line-interactive system which incorporates the most advanced power electronics technology to provide exceptional protection for electrical equipment.

Each **GE Digital Energy** UPS is thoroughly tested and conforms within tolerance to the following specifications. (Data are mean values and are subject to change without notice.) Information applies to all models unless otherwise specified.

2 - Functional Explanation

2.1 Principles of Operation

The **Match lite** UPS stores electric energy in batteries housed in the unit. This allows the UPS to supply output power even when the incoming mains power is cut off completely. Energy is stored as Direct Current (DC), while input and output energy must be Alternating Current (AC). Therefore the UPS contains a rectifier (to convert from AC to DC) and an inverter (to change energy from DC to AC). (See fig.1)

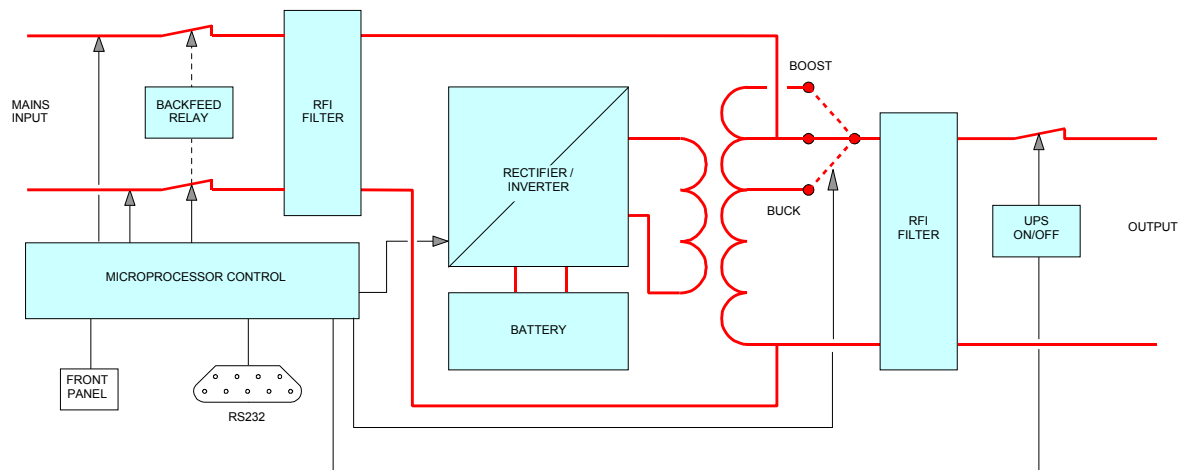


Fig. 1 Block diagram **Match lite** UPS

2.2 Normal Conditions

Under normal input conditions (see section 4.2) the load is supplied by the mains through a bypass circuit. Filtering capabilities guard against surges, spikes and high frequency interferences. The mains current also keeps the battery fully charged

The input voltage window is extremely wide: as long as the input voltage is between 165 - 275 VAC, the Automatic Voltage Regulation (AVR) guarantees an output voltage that is between 190 - 254 Vac.

2.3 Mains Failure

In the event of a mains power failure (i.e. absent or outside tolerance) the backfeed relay is opened and the load is supplied by the energy reserve stored in the battery. DC voltage from the batteries is transferred to the inverter which produces AC voltage for the load.

The transfer time is 4-10 milliseconds, sufficiently short for computers which therefore will continue to operate without interruption.

In the event of an extended mains failure, the inverter will stop when the battery energy has been used up. At this point, the UPS is no longer able to power the connected equipment.

When the mains is re-established within tolerance, the load will be supplied again by the mains and the batteries will be recharged, making them ready to support future power failures.

3 - External Description

3.1 Front and Rear Panel



Fig. 2 Front and rear panel **Match lite** UPS

FRONT

LINE : green LED
 BAT : red LED
 Push-buttons

REAR

ComConnect : 9-pin Sub-D female
 Input socket : IEC/CEE (male)
 Output sockets : IEC/CEE (female)
 Input fuse : IEC Ø5x20

o = status indications
 ! = low priority alarms
 !! = high priority alarms

the operating mode
 abnormal operating situations
 situations in which *the actual output voltage of the UPS is no longer guaranteed*; immediate action should be taken

Situation		LINE	BAT	buzzer
o	Charger on	----- 1x/s.		
o	Normal operation	-----		
!	On battery		-----	----- 1x/4s.*
!!	Battery low		----- 1x/s.	----- 1x/s.
!	Replace battery	-----	----- 1x/30s.	----- 1x/30s.
!!	Overload	-----		-----
o	Shutdown	----- 1x/s.		

----- = intermitting

----- = continuous

* = resetable: press button 'ON/TEST' briefly.

Only the current alarm is muted; a next alarm re-activates the buzzer.

A buzzer reset does not affect the computer interface alarm.



Model Match lite : **500**

3.2 Enclosure

Construction : steel/plastic
Finish (case + front) : RAL 7035 (light grey)
Protection : IP 20

3.3 Dimensions

Cabinet dimensions (h x w x d) : 150 x 102 x 300 mm (LMC 10)
Shipping dimensions (h x w x d) : 220 x 170 x 390 mm

3.4 Weight

Weight (kg) : 7.4
Shipping weight (kg) : 8.4

4 - Electrical Specifications

4.1 Ratings

Voltage Amperes (VA) : 500
with computer type load
Watts (W) : 300

4.2 Input

AC input voltage : 220 - 240 V
AC input voltage window : 165 - 275 V, mains operation
Max. AC input voltage : 350V (above 275V battery operation)
Minimum start-up AC voltage : 187V (at any load)
Input frequency : 50 Hz or 60 Hz
Input frequency range : nominal $\pm$ 5 Hz
Typical no-load power consumption, normal operation (W) : 12
AC input current (A) : 2.8
AC input fuse (A) : 3.15

4.3 Output

AC output voltage : 230 V nominal (suitable for 220-240 V loads)
AC output voltage tolerance : 190-254 V (230V $\pm$ 2% when operating on battery)
Output frequency : 50 Hz or 60 Hz, autosensing
in case of battery start: equal to last input frequency
Output frequency stability : $< \pm$ 0.1 Hz (battery operation)
Output waveform : quasi sine wave
Crest factor handling : up to 6:1
Power factor : 0.6 (0.7 at 90% load)
Buck/boost voltage regulation : at 165-275Vac input voltage, the output voltage varies between 190-254Vac
Transfer/reverse transfer voltages :
normal $\Leftrightarrow$ boost 202 / 215
normal $\Leftrightarrow$ buck 254 / 240
boost $\Leftrightarrow$ battery 165 / 175
buck $\Leftrightarrow$ battery 275 / 265
Transfer time : typically 4 ms., max. 10ms.

4.4 General Design Criteria

Safety : EN 50091-1-1 (EN 60950, IEC 950)
Electromagnetic compatibility : EN 50091-2 (EN 50081-1 + EN 50082-1)

Note: The UPS is intended for use in normal domestic and office situations



5 - Performance Characteristics

5.1 Environment

Ambient temperature	: -10 to 40°C
Audible noise at 1 meter	: less than 35 dB(A) (virtually inaudible)
Max. relative humidity	: 95% (non-condensing)

5.2 Runtimes (ratings given for 25°C)

Model	: 500
	<i>runtime in minutes</i>
At typical UPS load (75%)	7
VA / Watts	
100 / 60	42
300 / 180	10
500 / 300	4

5.3 Standard Features

Wide AC input voltage window

Minimises need for battery operation

Automatic voltage regulation

The buck and boost function reduces the input voltage variations to acceptable levels for the load.

Excellent high voltage protection

Protect itself and the load up to 350Vac.

Battery start

Allows you to switch on the unit whilst the mains input is absent.

Output frequency automatically set at 50 or 60 Hz (auto sensing)

Suitable for 50Hz and 60Hz mains systems.

No risk for wrong frequency on battery mode.

Superior battery management:

- **Quick advanced battery test**
UPS keeps running in normal operation while testing the battery, instead of switching to battery operation. This means no risk to interrupt the load if the battery is empty or damaged, or in case of overload.
- **Lowest battery temperature during mains operation**
The design of the unit resulted in significantly lower battery temperature which increases battery lifetime.
- **Autocharging**
Charger is switched on automatically when mains input is present



6 - Communications Port: ComConnect

6.1 Principles of Operation

The RS232 port is a plug-in interface port (9-pin, Sub-D, female) which enables advanced communication between the UPS and the computer. Use UPS software for unattended operation of workstations, power quality related data logging, shutdown notification and control, auto-restart, diagnostics, and battery conservation features.

We strongly recommend to use only original **GE Digital Energy** software in combination with the RS232 interface port.

Interface kits (cables and/or software) are available for operating systems supporting JAVA and most commonly used network operating systems, including Novell, UNIX, VMS, Windows, IBM AS/400, IBM OS/2, LINUX.

For specific information on **GE Digital Energy's** connectivity products please contact your local dealer or Internet: www.gedigitalenergy.com

6.2 Pin Functions

Port description: female, 9-pin Sub-D

Pin #	Function
1	-
2	RS232 input
3	RS232 output
4	Common, protective earth
5	-
6	-
7	-
8	-
9	-

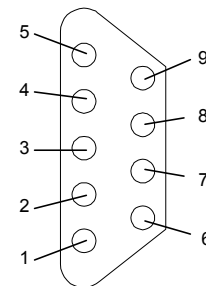


Fig. 3 RS232 interface

The ComConnect port is available even when the UPS is switched off. If no mains is available the ComConnect port is turned off 10 hours after UPS shutdown to save battery energy.

7 - Batteries (ratings given for 25°C)

Model	: 500
Nominal voltage	: 12Vdc
Number of batteries	: 1
Battery capacity	: 7Ah
Type	: sealed and maintenance free
Service life	: up to 6 years (depending on operating conditions)
Autonomy	: see section 5.2
Battery recharge current	: 0.5A
Battery recharge time	: approx. 3 hours for 90% capacity

Long term storage: see chapter 8



8 - Transport / Storage

No liability can be accepted for any transport damage when the equipment is shipped in non-original packaging. Store the UPS in a dry location with the batteries in a fully charged state. Storage temperature must be within -20 +45 °C. If the unit is stored for a period exceeding 3 months, optimal battery lifetime is obtained if the storage temperature does not exceed 25°C.

If the unit is stored for an extended period of time, the batteries must be recharged periodically. Be sure that the battery drawers are connected to the UPS. Subsequently connect the unit to a wall outlet and recharge the batteries for 24 hours:

- if the storage temperature is within -20 and +30°C: every 3 months,
- if the storage temperature is within -20 and +45°C: every month.