

MegaLine 5000

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1. GENERAL FEATURES

The Legrand UPS MegaLine 5000 model is a UPS using high frequency PWM technology, On Line Double Conversion type, solid neutral, modular architecture, redundant, Rated Power 5 kVA – 3.5 kW, equipped with valve-regulated hermetic-type accumulator batteries, contained inside the UPS in a specific compartment or in one or more external cabinets, sized to guarantee a minimum autonomy of 11 minutes when 80% charged.

1.1 Modularity

The MegaLine UPS has a modular architecture, it is composed of identical modules that, conceptually operating in parallel, compose the power section (1250VA power modules) and the accumulator batteries (battery modules) of the UPS.

These modules are contained inside the UPS and have identical functions.

The power modules are composed of the functional blocks listed below:

- Rectifier/PFC
- Inverter
- Booster
- Battery Charger

The battery modules on the other hand, are composed of a series of batteries, protected accordingly by fuses in series.

1.2 Expandability

The modularity of the UPS allows for on site back-up time expansion (upgrade on site) without the need for calibration, settings, factory changes and in any case without the use of dedicated tools.

1.3 Redundancy

The modular UPS is redundant in power, with 1,250 VA power modules, contained in the UPS cabinet, with suitable mechanical latches and dedicated and pre-arranged electric connections. Redundancy is achieved by an architecture based on the concept of "load sharing".

1.4 Architecture

The system uses distributed parallel architecture, in other words all of the power modules share the load (load sharing) so that none of the power modules remain inactive or in stand-by, thus ensuring total continuity to the power supply of the loads, even in case of failure (with suitable redundant sizing). The modular architecture offers the possibility of supplying the load with energy even if the inverter of a power module shuts down (if there are two or more modules).

The rated power that can be delivered by the sum of the working modules will always be available to the user who can operate at a reduced load or, with a redundant configuration, at the normal load.

1.5 Bypass

A by-pass circuit automatically transfers the load directly to the primary network without interrupting the power supply, in conditions of overload, overheating, continuous voltage outside of the tolerances and inverter fault.

A diagnostic and shutdown software, if installed accordingly on a PC connected to the UPS, allows you to access all of the MegaLine operating data, regulate and set special functions (such as the display screen) and control the shut down of Windows and Linux operating systems.

An optional software (UPS SuperviSor) provides hierarchical multiserver shutdown and remote UPS management for any operating system in a heterogeneous network (Windows, Novell, Linux and the most common Unix).

MegaLine is managed by a microprocessor and is capable of displaying measurements, alarms and operating modes with a liquid crystal control panel and high luminosity signals.

The UPS is capable of carrying out the following measurements and displaying the values directly on the **display**:

Input

- Current:
 - Effective value
 - Peak value
 - Crest factor

Voltage:

- Effective value

Power:

- Apparent
- Active

Power factor

Frequency

Output

- Current:
 - Effective value
 - Peak value
 - Crest factor

Voltage:

- Effective value

Power:

- Apparent
- Active

Power factor

Frequency

Batteries

- Additional Battery Modules
- Additional Battery Chargers
- Battery operation time
- Number of discharge cycles
- Residual capacity
- Battery voltage

Various

- Internal temperature
- External temperature

Data log

- Bypass operation
 - Overheating
 - Number of switches per battery
 - Number of total discharges
- Time:
- Battery operation
 - Network operation

1. GENERAL FEATURES *(continued)*

The UPS also allows the following adjustments to be made through the display:

Output

- Voltage
- Frequency
- N+X redundancy

Neutral sensor

- Enable
- Ignore during operation

Input

- Enable synchronisation
- Extended synchronisation interval

Batteries

- Capacity
- Thresholds
- Max. duration per battery
- Max. duration per battery after the reserve capacity threshold
- Enable battery test
- Enable auto-restart

By-Pass

- Enable
- Forced
- Operation sensitivity
- Off-line mode
- Load waiting mode

The Static MegaLine UPS has the CE marking, pursuant to Directives 73/23, 93/68, 89/336, 92/31, 93/68 and is designed and built in compliance with the following standards:

- EN 62040-1 "General and safety requirements for UPS used in operator access areas"
- EN 62040-2 "Electromagnetic compatibility (EMC) requirements"
- EN 62040-3 "Method of specifying the performance and test requirements"

2. TECHNICAL FEATURES

| General Features | |
|-----------------------------------|---|
| Type of operation | On line double conversion |
| UPS Structure | Modular, Redundant with 1,250 VA power modules, contained in a single cabinet |
| Neutral Connectivity | Solid neutral |
| Wave shape in networked operation | Sinusoidal |
| Wave shape in battery operation | Sinusoidal |
| Type of bypass | Static and electromechanical |
| Switching time | None |

| Input features | |
|--|---|
| Rated input voltage | 230 V |
| Input voltage interval | From 184 V to 264 V with rated load |
| Minimum voltage in network operation | 100 V at 50% of the load |
| Input frequency | 50 Hz or 60Hz (autosensing or selected by the user) |
| Total harmonic distortion of the input current (THDI _{in}) | < 3% at 100% of the rated load |
| Power factor | > 0.99 from 20% to 100% of the rated load |
| Inrush current | At most 100% of the load current |

| Output features (network operation) | |
|---|--|
| Rated output voltage | 230 V (adjustable by 1 V intervals) |
| Rated/active output power | 5,000 VA / 3,500 W |
| Tolerance on the output voltage | Static ± 1%; Dynamic (0-200%; 200-0%) ± 1% |
| Total harmonic distortion of the output voltage | Linear load < 0.5 %; Non-linear load < 1 % |
| Rated output frequency | 50 Hz or 60 Hz (autosensing and/or selected by the user) |
| Tolerance on the output frequency | Synchronised to the input frequency; ± 1% when not synch. |
| Crest factor on the output current | 3:1 |
| Overload capacity: | |
| • for at least 1 second | 300% without the operation of the automatic bypass |
| • for at least 5 seconds | 200% without the operation of the automatic bypass |
| • for at least 30 seconds | 150% without the operation of the automatic bypass |

| Output features (battery operation) | |
|--|---|
| Rated output voltage | 230 V (adjustable by 1 V intervals) |
| Tolerance on the output voltage | Static ± 1%; Dynamic (0-100%; 100-0%) ± 1% |
| Output frequency | 50 Hz or 60 Hz ± 1% |
| Rated/active output power | 5,000 VA / 3,500 W |
| Total harmonic distortion of the output voltage on non-linear rated load, PF=0.7 | < 1 % |
| Overload capacity: • for 15 seconds | 160% |

| Battery features | |
|--------------------------------------|-------------------------------------|
| Type of battery | Lead-acid, sealed, maintenance-free |
| Unitary capacity | 9 Ah (12V) |
| UPS battery / battery module voltage | 36 V max. (series of 3*12V) |
| Battery module protection | 2 fuses for each battery module |

| Manufacturing specifications | |
|---------------------------------------|--|
| Maximum weight | 53 kg (for a back-up time of 11' – 80% of the load) |
| Maximum dimensions (W×L×H) | 270x570x475 mm (for a back-up time of 11' – 80% of the load) |
| Type of switching | High frequency PWM |
| Rectifier/booster/inverter technology | MOSFET |
| Interfaces | 1x RS232 serial port + 2xLogic Contact ports |
| Noise level measured at 1 meter | <40 dBA |
| Degree of protection | IP21 |
| Installed power boards | 4 |
| Free power expansion slots | - |
| Installed battery kits | 4 |
| Free uptime expansion slots | - |