MINIMUST

10-90 kVA

MODULAR THREEPHASE UPS

1:1 3:1 3:3

The ideal solution for:

- ✓ *DATA CENTER / SERVER*
- ✓ *TELECOMMUNICATIONS*
- ✓ *INDUSTRIAL APPLICATIONS*
- ✓ *TRANSPORTS*
- ✓ *SMALL/MEDIUM ENTERPRISES*

GTEC
Smart Energy Solutions

OVERVIEW

MINIMUST is the innovative **small modular UPS** designed to adapt perfectly to the installation needs of each user.

The system, in addition to ensuring **Power Factor 1**, is able to guarantee top performance in its category, while ensuring a flexibility of use unique in its kind.

In fact, UPS can be installed both in **stand-alone mode and in rack mode** inside a standard 19'' cabinet and can be **configured in versions 1/1, 3/1 and 3/3**, according to your preferences.

PF1

Power Factor 1 with performance at the top of its category

Efficiency up to 95% in Normal Mode

Modular architecture with **Hot Swap** technology

Configuration flexibility **3/3, 3/1, 1/1**

7" Colour **Touch Screen Display**

ADVANTAGES

FLEXIBILITY

MINIMUST is an extremely versatile solution that can easily adapt to any type of installation.

The system can in fact mount **10 or 15 kVA modules** and can be configured in **1/1**, **3/1** and **3/3** modes, both as **stand-alone** UPS and in **rack mode inside a standard 19" cabinet**.

Its modular structure also allows to increase the number of modules according to the power required. Each new module inserted is automatically configured according to the new overall power of the system, guaranteeing unparalleled ease of use.

RELIABILITY

MINIMUST is an extremely reliable UPS, first and foremost thanks to its particular modular structure, which allows it to operate in **n+1 redundancy** even for medium/low power sizes. It is in fact possible to configure one module more than what is necessary for covering the base load, so that even in case of exclusion of a module, power remains equally guaranteed by the other modules in operation.

UPS is then built exclusively with high reliability materials and equipped with standard painted boards.

In addition, thanks to the special **Smart Parallel Management** function, the components always work at optimum power, thus increasing the efficiency of the system and at the same time reducing the wear of the parts involved.

PRODUCT RANGE

MINIMUST - 10/20 KVA

UPS can accommodate up to 2 10 kVA power modules, with the possibility of setting the n+1 redundancy.

The system can be configured in 1/1, 3/1 and 3/3 modes.

Maximum power: 20 kVA, PF 1

MINIMUST - 10/40 KVA

UPS can accommodate up to 4 10 kVA power modules, with the possibility of setting the n+1 redundancy.

The system can be configured in 1/1, 3/1 and 3/3 modes.

Maximum power: 40 kVA, PF 1

MINIMUST - 10/60 - 15/90 KVA

UPS can accommodate up to 6 10 kVA or 15 kVA power modules, with the possibility of setting the n+1 redundancy.

The system can be configured in 1/1, 3/1 and 3/3 modes for the 10/60 kVA model and in 3/3 mode for the 15/90 kVA model.

Maximum power: 90 kVA, PF 1

TECHNOLOGY

This system is made with the latest generation components and state-of-the-art technology.

- Rectifier and inverter with **IGBT technology**
- **Digital microprocessor control with DSP** of the latest generation
- Standard programmable **clean contacts card**
- **Tropicalised boards** with high reliability
- **Emergency Power Off** (EPO)
- **Hot Swap** Control and Bypass Module

MODULAR ARCHITECTURE

N+1

MINIMUST modular structure allows to operate in redundancy n+1 even for medium/low power sizes.

Each new module inserted is automatically configured according to the new available power.

The system can also be installed in rack mode in a standard 19" cabinet

CONNECTIONS AND INTERFACE

In addition to the more common **RS232 and RS485 communication ports**, MINIMUST offers a **programmable clean contact card** as standard for easier integration with local monitoring systems.

On request, there is also **the SNMP option** that allows to connect the uninterruptible power supply via an Ethernet network.

ADVANCED COMMUNICATION

TOUCH SCREEN DISPLAY

MINIMUST is equipped with an advanced **7" colour touch screen display** that allows to quickly monitor the status of the system, as well as directly set the main settings.

Also available on the panel is the **EPO** (Emergency Power Off) button and an **LED indicator** that takes on a different colour depending on the operating modes and conditions.

UPSILON SOFTWARE

UPS is equipped with **professional monitoring software** to display information in real time through a clear and intuitive screen, highlighting the operating status and main parameters of the UPS.

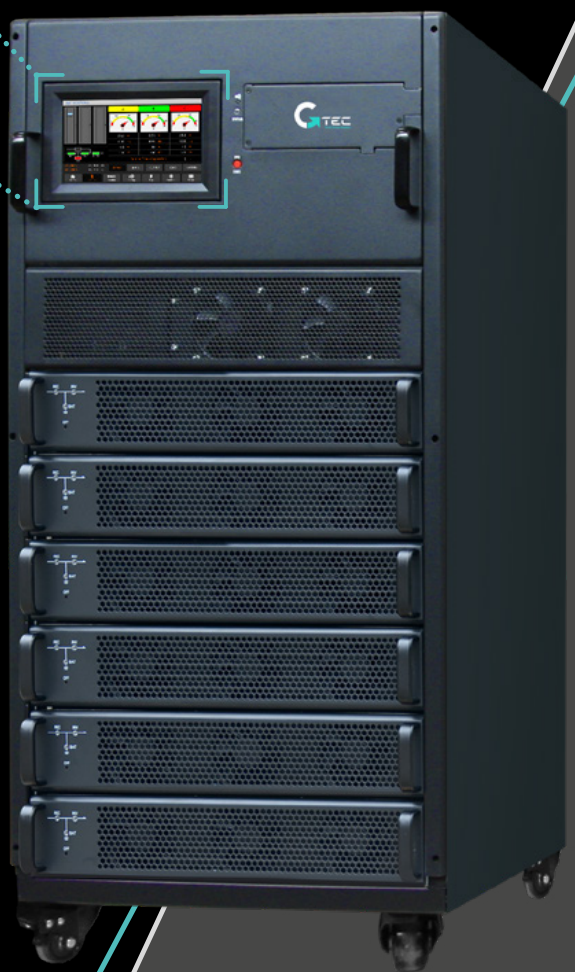
SUPPORTED OPERATING SYSTEMS

Windows; Linux; Novell Netware; Mac OS; IBM OS/2; HP OPEN VMs; Most commonly used UNIX operating systems such as: IBM AIX, HP UNIX, SUN Solaris INTEL and SPARC, SCO UNIX and UnixWare, Silicon Graphic IRIX, Compaq Tru64 UNIX and DEC UNIX, BSD UNIX and FreeBSD UNIX, NCR UNIX.

System main data screen.

Battery status information screen.

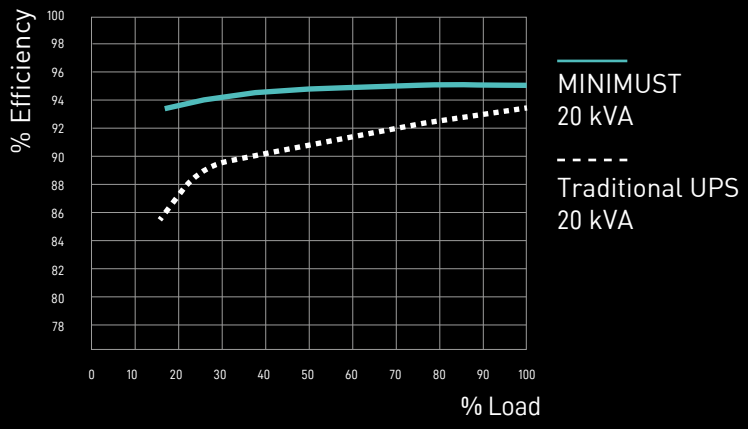
Information screen on the status of the power modules.



EFFICIENCY

Every single element of MINIMUST has been designed and taken care of in the smallest detail, thus leading the UPS to reach the highest levels of efficiency available in the industry.

MINIMUST is able to achieve **a yield of 95% in Normal Mode** and up to 99% in Eco Mode. This level of performance allows for significant energy savings.



SMART PARALLEL MANAGEMENT

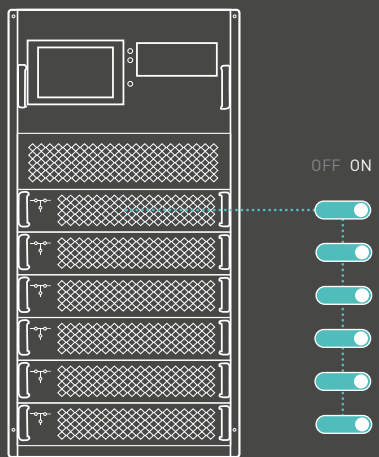
MINIMUST is equipped with **an innovative power module control system** that maximises UPS performance and duration. Depending on the requirements, the system is indeed able to automatically manage the operation of the modules, switching them on and off according to the load level and operating hours.

Therefore, Smart Parallel Management offers multiple advantages: increased efficiency, reduced wear and tear on the parts involved and minimisation management costs.

Here is a practical example of a variable load system, where thanks to the Smart Parallel Management function of **MINIMUST – 15/90 kVA** there is a significant operational improvement.

DAYTIME LOAD / FULL LOAD
75 kVA (n+1)

NORMAL OPERATION

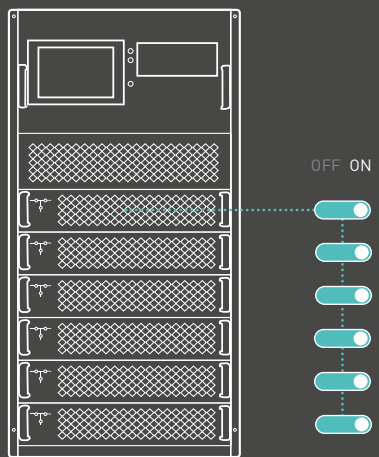


Working modules	6
Module's power	12,5 kVA
System efficiency	**95%**

NIGHT LOAD / VARIABLE LOAD
15 kVA (n+1)

OPTION A

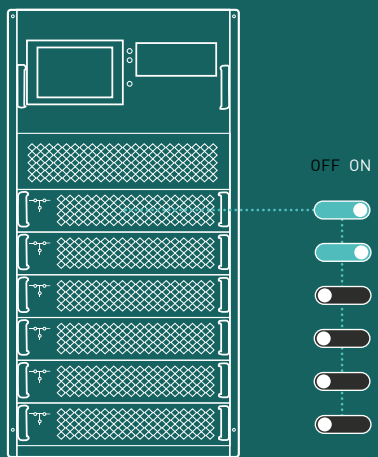
NORMAL OPERATION



Working modules	6
Module's power	2,5 kVA
System efficiency	**89%**

OPTION B

SMART PARALLEL MANAGEMENT

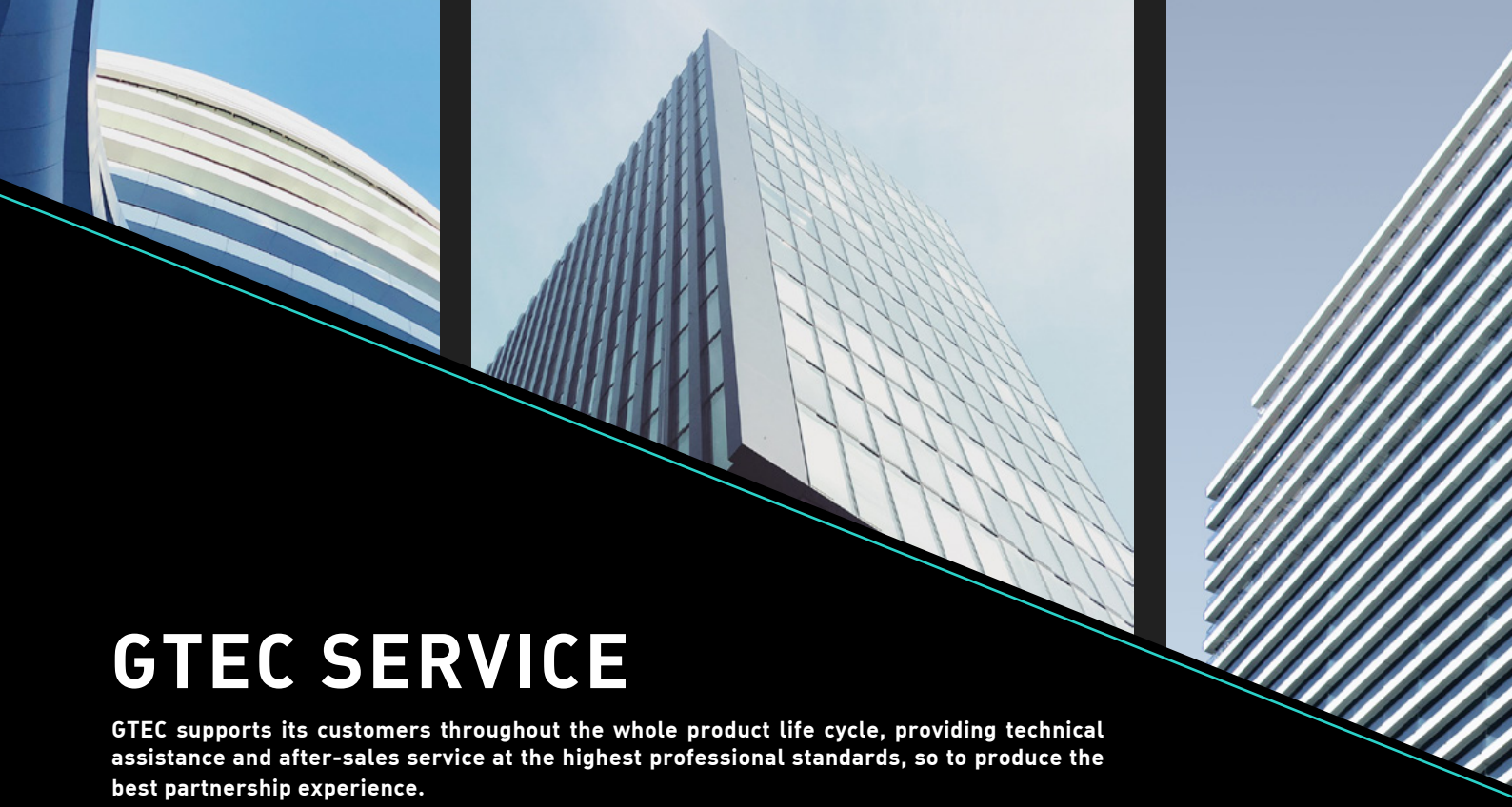


Working modules	2
Module's power	7,5 kVA
System efficiency	**95%**

MODEL	MMUST-20R	MMUST-40R	MMUST-60R	MMUST-90R
Maximum system power	20 kVA / 20 kW	40 kVA / 40 kW	60 kVA / 60 kW	90 kVA / 90 kW
Module power	10 kVA / 10 kW			15 kVA / 15 kW
MAIN INPUT				
Grid system	3 Phases + Neutral + Ground standard (1P+N+G optional)			
Rated voltage / Frequency	380V/400V/415V threephases with neutral, 220V/230V/240V singlephase, 50/60Hz			380V/400V/415V threephases with neutral, 50/60Hz
Voltage range	Up 276 Vac; Down 132 Vac -20%~-40% rated power derating from 100%~80%			
Frequency range	40-70Hz			
Power factor	>0.99			
Current THDi	4%			
BYPASS INPUT				
Grid system	3 Phases + Neutral + Ground standard (1P+N+G optional)			
Rated voltage / Frequency	380V/400V/415V threephases with neutral, 220V/230V/240V singlephase, 50/60 Hz			
Voltage range	Default: -20% ~ +15% Selectable up to: -40% ~ +25%			
Frequency range	Selectable, ±1 Hz ~ ±5 Hz, default ±2 Hz			
Bypass overload	125%, long term operation 125%<load<130%, 10 minutes 130%<load<150%, 1 minute load>150%, 300 milliseconds			110%, long term operation 110%<load<130%, 5 minutes 130%<load<150%, 1 minute load>150%, 300 milliseconds
OUTPUT				
Rated voltage / Frequency	380V/400V/415V threephases with neutral, 220V/230V/240V singlephase, 50/60 Hz			380V/400V/415V threephases with neutral, 50/60 Hz
Power factor	1			
Voltage THDv	<1% (linear load); <5.5% (non-linear load)			
Voltage precision	1.5%			
Transient response	<5% for step load (20-80%; 100-20%)			
Transient recovery	<30ms for step load (0-100%; 100-0%)			
Inverter overload	<102%, long term operation 110%, 60 minutes 125%, 10 minutes 150%, 1 minute >150%, 200 milliseconds			
Frequency regulation from battery	50/60 Hz ±0.1%			
Synchronized range	Selectable, ±1 Hz ~ ±5 Hz, default ±2 Hz			
Synchronized slew rate	Selectable, 0.1 Hz/S ~ 5 Hz/S, default 0.5 Hz/S			
Crest factor	3:1			
BATTERIES				
Battery rate voltage	±240 VDC (selectable)			
Number of batteries *	Standard: 40 (20+20) batteries 12V Selectable: 32-44, without derating			
Charger voltage precision	1%			
Batteries arrangement	External			
Battery type	Pb / Ni-Cd			
SYSTEM				
Efficiency	Normal operation: 95% Eco Mode operation: 99% Battery operation: 94,5%			
Display	LED + LCD Touch screen			
Protection degree	IP20			
Interface	Standard equipment: RS232, RS485, dry contacts, EPO Optional: SNMP			
ENVIRONMENT				
Operating temperature	0 ~ 40 °C			
Storage temperature	-25 ~ 70 °C			
Relative humidity	0 ~ 95% (no condensing)			
Noise (dBA at 1 meter far)	Maximum 56 dB			Maximum 58 dB
Altitude	<1000m; load derated 1% per 100m, from 1000 ~ 2000m			
MECHANICAL DATA				
Power module dimensions W*D*H (mm)	436*590*85 (2U)			
Power module weight (Kg)	15,3			15,5
Cabinet dimensions W*D*H (mm)	485*697*398 (7U)	485*697*575 (11U)	485*751*1033	
Cabinet weight (Kg)	42	51	70	
Colour	RAL 7021			

Note: technical specifications and data could be changed without notification

* Our standard battery cabinets are 20+20 batteries



GTEC SERVICE

GTEC supports its customers throughout the whole product life cycle, providing technical assistance and after-sales service at the highest professional standards, so to produce the best partnership experience.

MAINTENANCE is an essential activity in order to guarantee a safe and stable load protection. GTEC shows maximum care about this topic, providing the best service in terms of experience, instrumentation and safety level.

Through the dedicated **CALL CENTER**, customers receive prompt answers to any request, and the specialized technicians directly schedule maintenance activities.

The partnership between GTEC and its customers gets consolidated through the **TRAINING SESSIONS** proposal for technical staff, so that each user can operate on the UPSs with maximum consciousness and safety.

Also, in the GTEC Service offers, a **PROJECT CONSULTING** team is available, in order to provide the best solution according to the designer's needs.

GTEC Europe srl
Strada Marosticana, 81/13
36031 Dueville (VI), Italy
Tel. +39 0444.361321
info@gtec-power.eu

GTEC France
france@gtec-power.eu

www.gtec-power.eu

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