

Working in Power



miniMUST 1090

3 Phase Double Conversion Mini Modular UPS

10KW - 150KW

- LOCAL AREA NETWORKS (LAN)
- SERVERS
- DATA CENTERS

- INTERNET CENTERS (ISP/ASP/POP)
- INDUSTRIAL PLCS
- EMERGENCY DEVICES (LIGHT, ALARM)

- ELECTROMEDICAL DEVICES
- TELECOMMUNICATION DEVICES
- INDUSTRIAL APPLICATION

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The miniMUST 1090 is a scaleable, hot-swappable true on-line double conversion modular uninterruptible power supply (UPS) system.

It can be configured as (N+X) to meet the most demanding loads, such as: Data Centers; Servers racks; Industrial automations and other mission critical loads where redundancy; flexibility and reliability are important.

Power module is designed with four capacities. 10PMX/ 15PMX/ 20PMX/ 25PMX with unity output power factor (PF1), thanks to the State of the Art technology, power module has higher capacity and more efficient than others in the completion, it is fully compatible with down-stream loads or devices with it's unity ouput power factor design, thus no oversizing of UPS is needed.

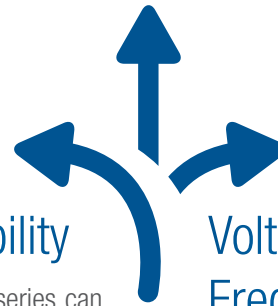


10PMX & 15PMX Power Module
436(L) x 590(D) x 85(H)



Integration Flexibility

The flexible miniMUST 1090 series can be integrated to Server / IT racks, to provide a customized one-stop solution for small and medium data center.



Voltage and Frequency Flexibility

miniMUST 1090 series can be configured to various voltage and frequency depending on the desired electrical systems; such as 3/3; 1/1; 3/1 or 1/3 with the option voltage converter kit.



20PMX/ 25PMX Power Module
400(L) x 495(D) x 86(H)

It can be configured as frequency converter (FC); 50Hz input 60Hz output or vice versa.

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Self-contained Power System

In a single 19" cabinet provides self-contained power system, it consists of:

- Modular UPS scale up to 40kVA/ 40kW in N+1 configuration as either for growth of demand or increase redundancy.
- In-built internal manual bypass to ease of system maintenance.
- 18/ 24 ways PDU for power distribution
- Battery up with runtime 2 x 40 x 12Ah battery for 10-15 mins runtime.

Extended Battery Backup Time

Standard 4A/ 6A/ 8A/ 10A battery charging current is available for 10PMX/ 15PMX/ 20PMX/ 25PMX power module respective, and is sufficient to meet most customer's expectation.

For special applications, 15A dc charger module is available for large capacity battery if extra-ordinary long backup time is needed. Multiple 15A charger modules can be installed in the UPS chassis to increase overall charger power. Please consult GTEC for configuration.



UPS FEATURES

IGBT RECTIFIER

- Designed to operate with wide input voltage and frequency range, advance technology achieving up to THDi<2% and input PF 0.99 thanks to IGBT Rectifier and PFC control.

BATTERY CHARGER

- Distributed battery charger in each module; it is capable of delivering up to 20% of the rated power per UPS module for battery charging. Flexible battery quantity selection from 32 – 44 blocks 12V battery; and intelligent battery temperature compensated kit available for smart battery charging to prolong battery life.

USER FRIENDLY ADJUSTABLE PARAMETERS

- New generation high efficiency T type 3 level IGBT power bridge fully digital controlled.

HOT-SWAPPABLE STATIC BYPASS MODULE

- Mean time to repair (MTTR) is reduced.

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miniMUST 1090 Chassis



Chassis for 2 modules
miniMUST 20i/10X

designed for up
to 2 x 10PMX

miniMUST30i/15X

designed for up
to 2x15PMX



Chassis for 3 modules
miniMUST30i/10X

designed for up
to 3 x 10PMX

miniMUST45i/15X

designed for up
to 3 x 15PMX



Chassis for 4 modules
miniMUST40i/10X

designed for up
to 4 x 10PMX



Chassis for 6 modules
miniMUST60i/10X
designed for up to 6 x 10PMX

miniMUST 90i/15X
designed for up to 6 x 15PMX

Note:

15A dc charger module could be swapped with UPS module to increase overall battery re-charge current

miniMUST1090

User Friendly Mimic Panel and Remote Monitoring

User friendly 7" colour touch screen with 1021 x 600 pixels resolutions LCD is designed for easy and fast information of UPS at one glance. Programmable dry contacts is available for remote monitoring and external input analogue signal interfacing with UPS.



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TECHNICAL SPECIFICATIONS							
Capacity / Module Model	10kVA – 90kVA 10PMX (10kVA/ 10kW); 15PMX (15kVA/ 15kW)						
INPUT							
Rated voltage (Vn)	380V/ 400V/ 415V, 3 phase + N (common neutral with Bypass input)						
Voltage tolerance (V)	-40% to +20% Vn						
Frequency & Range	50Hz/ 60Hz auto sensing, 40Hz to 70Hz						
THDi%	≥0.99 & ≤4%						
BATTERY							
Type	VRLA battery; Vented lead acid battery & NiCad battery						
Charging Method	Two level & Cyclic charging according to EN 50272-2						
Ripple voltage	Approximately 0%						
INVERTER OUTPUT							
Rated Power (kVA/ kW)	10kVA/kW – 90kVA/kW						
Module power factor	1						
Rated Voltage & Stability (V)	±1.5% from 0% to 100% linear load						
Frequency & Stability (Hz)	50/60 Hz ± 0.1%						
Dynamic Stability (V)	≤5% for step load according to IEC62040-3						
Overload	110% for 60mins; 125% for 10mins; 150% for 1min; >150% for 200ms						
BYPASS							
Rated voltage (V)	380V/ 400V/ 415V, 3 phase + N						
Voltage tolerance (V)	Default -20% / +15%. Upper threshold +10%; 20%; 25% selectable, lower threshold: -10%; -30%; -40% selectable						
Frequency & Range	50/60Hz, selectable ±1Hz, ±3Hz, ±5Hz						
Rated current (A)	28A ~ 135A depending on chassis model						
ENVIRONMENTAL DATA							
Operating Temperature	0°C to 40°C (Note: VRLA battery life is halved for every 10°C increase in temperature from 20°C)						
Relative Humidity	<95% non-condensing						
Colour	RAL7021 for side panel; black for module						
Efficiency	95% at Double Conversion On-line / 99% ECO Mode						
Compliance Standard	General & Safety: IEC EN62040-1-1; EMC: IEC EN62040-2 (C3); Performance & Test: IEC EN62040-3						
MODULE PHYSICAL DATA							
Module Model	10PMX			15PMX			
Size (LxDxH) mm & weight	436 x 590 x 85 (mm) / 15.3kg						
CHASSIS PHYSICAL DATA							
Chassis model (miniMUST)	20i/10X	30i/15X	30i/10X	45i/15X	40i/10X	60i/10X	90i/15X
Size (LxDxH) mm & weight	485x700x400 mm / 42kg		485x751x575 mm / 55kg		485x700x575 mm/ 51kg	485x751x1033 mm / 70kg	
Sound level at 1m	56dBA	58dBA	56dBA	58dBA	56dBA		58dBA
Mimic Panel	7" colour touch screen, 1024 x 600 resolution & LED						
In-built breakers/ isolator	Bypass & Manual Bypass		Manual Bypass		Bypass & Manual Bypass	Manual Bypass	
Cable entry	Rear bottom						
Compliance standards	EN50091-1-1/IEC62040-1-1/AS62040-1-1 for General & safety requirements for UPS used in operator access areas EN50091-2/ IEC62040-2/ AS62040-2 (C3) for EMC for UPS EN50091-3/ IEC62040-3/ AS62040-3 for Method of specifying performance and test requirements of UPS						
Cabinet protection rating	IP20						
Interface	Standard: Dry contacts, RS232, RS485, USB / Optional: SNMP						

Note: UPS specification and data may subject to change for improvement without prior notice

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TECHNICAL SPECIFICATIONS	
Capacity / Module Model	40kVA – 150kVA 20PMX (20kVA/ 20kW), 25PMX (25kVA/ 25kW)
INPUT	
Rated voltage (Vn)	380V/ 400V/ 415V, 3 phase + N (common neutral with Bypass input) 220V/ 230V/ 240V, 1 phase (common neutral with Bypass input)
Voltage tolerance (V)	-26% to +20% Vn for 100% load -43% to +20%, >75% load
Frequency & Range	50Hz/ 60Hz auto sensing, 40Hz to 70Hz
Input power factor & THDi%	≥0.99 & ≤2% (100% linear load)
BATTERY	
Type	VRLA battery; Vented lead acid battery, NiCad battery& Lithium-Ion battery
Battery Wiring	3 wires (+, N, -) & 2 wires (+, -)
Charging Method	Two level & Cyclic charging according to EN 50272-2
Ripple voltage	Approximately 0%
INVERTER OUTPUT	
Rated Power (kVA/ kW)	20kVA/kW& 25kVA/kW per power module
Module power factor	1
Rated Voltage & Stability (V)	±1% from 0% to 100% linear load
Distortion (THDv)	<1% (linear load); <5% (non-linear load to IEC 62040-3)
Frequency & Stability (Hz)	50/60 Hz ± 0.1%
Dynamic Stability (V)	≤5% for step load according to IEC62040-3
Overload	110% for 60mins; 125% for 10mins; 150% for 1min; >150% for 200ms
BYPASS	
Rated voltage (V)	380V/ 400V/ 415V, 3 phase + N (common neutral with Bypass input) 220V/ 230V/ 240V, 1 phase (common neutral with Bypass input)
Voltage tolerance (V)	Default -20% / +15% (selectable -40% to +25%)
Frequency & Range	50/60Hz, selectable ±1Hz, ±3Hz, ±5Hz
ENVIRONMENTAL DATA	
Operating Temperature	0°C to 40°C (note: VRLA battery life is halved for every 10°C increase) / Up to 95% non-condensing
Relative Humidity	<95% non-condensing
Colour	RAL7021 for side panel; black for module
Efficiency	96.5% at Double Conversion On-line / 99% ECO Mode
Compliance Standard	General & Safety: IEC EN62040-1; IEC 60950-1 / EMC: IEC EN62040-2; IEC 61000-4-2 (ESD) ; IEC 61000-4-3 (RS) ; IEC 61000-4-4 (EFT) ; IEC 61000-4-5 (Surge)
MODULE PHYSICAL DATA	
Module Model	20PMX/20PMX-N (w/o neutral) 25PMX/25PMX-N (w/o neutral)
Size (LxDxH) mm & weight	400 x 495 x 86 (mm) / 15kg
CHASSIS PHYSICAL DATA	
Chassis model (miniMUST)	40i/20X 50i/25X 80i/20X 100i/25X 120i/20X 150i/25X
Size (LxDxH) mm & weight	445 x 660 x 396, 75kg & 82kg 445 x 700 x 748, 75kg & 82kg 445 x 700 x 924, 75kg & 82kg
Sound level at 1m	65dB @ 100% load ; 62dB @ 45% load
Mimic Panel	7" colour touch screen & LED
Cable entry	Rear bottom
Cabinet protection rating	IP20
Interface	Standard: Dry contacts, RS232, RS485, USB / Optional: SNMP

Note: UPS specification and data may subject to change for improvement without prior notice

UPService can provide customers with:

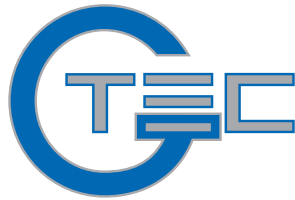
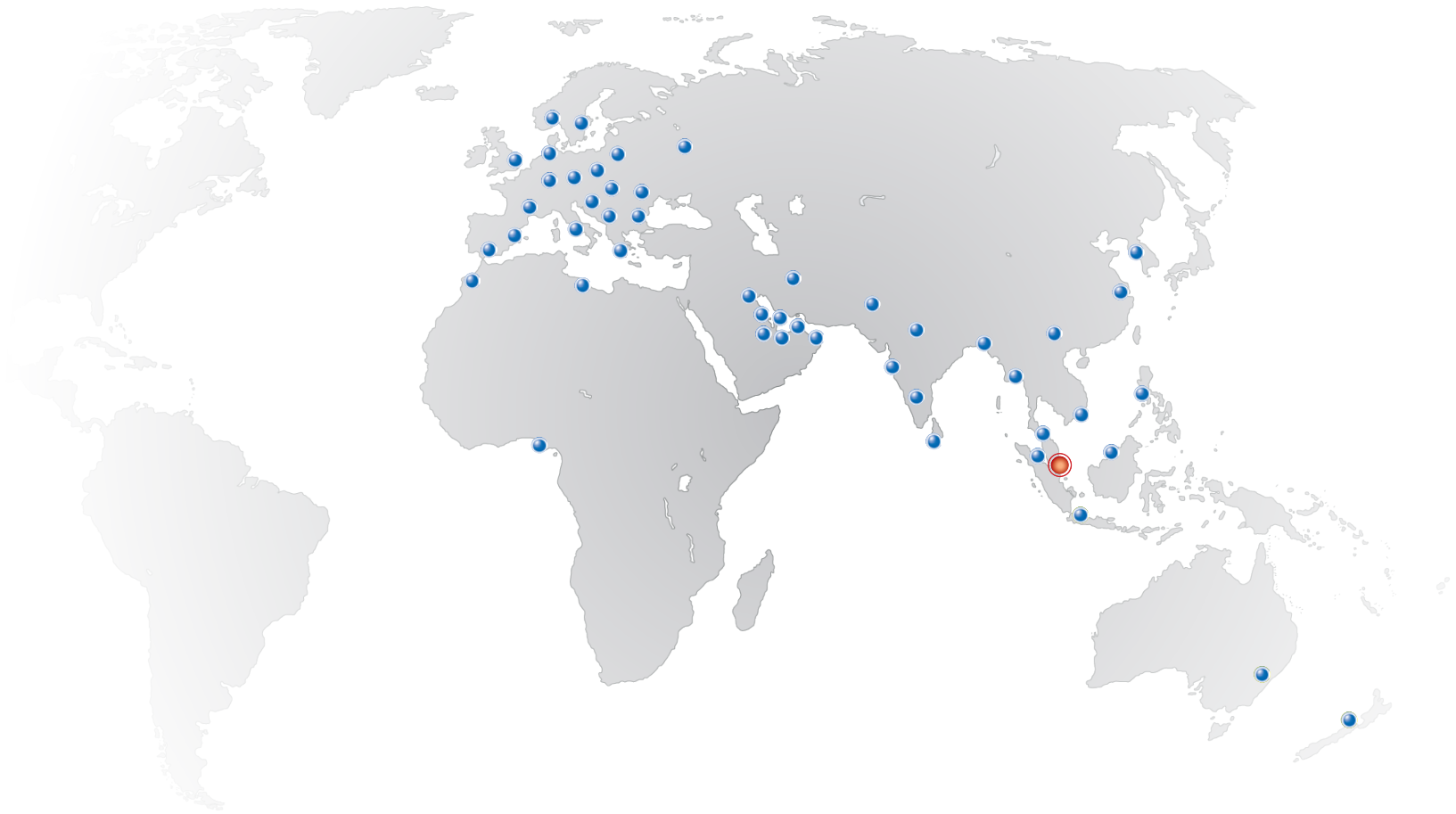
- A dedicated CALL CENTRE for connection to the UPService organisation. UPService personnel are always available and ready to provide advice and assistance regarding UPS installation, maintenance, fault finding and repair.
- FAST & READY A fast repair on site is guaranteed through the use of state-of-the-art UPS technology and the professionalism of the UPService personnel and Authorised Assistance Centres. UPService guarantees that failed parts are replaced with original ones, tested and updated in order to maintain the safety, reliability and operating characteristics of the UPS.
- COMMISSIONING AND START-UP UPService can provide assistance during commissioning and startup of the UPS equipment on-site with additional training during handover to site personnel. UPService engineers can also verify site suitability, analyse and advise on potential problems, and disconnect and relocate equipment. UPService recommend that all hardwired installations are commissioned by UPService engineers.
- MAINTENANCE CONTRACTS can be provided by UPService to minimise response times and repair costs. Contracts range from periodic inspections to comprehensive cover including labour and materials.

- UPService organises regular TECHNICAL TRAINING COURSES for UPS operators and installers.

TECHNICAL ASSISTANCE SERVICE

UPService, our technical assistance facility uses highly trained engineers to provide a reliable and competent technical support and after-sales service.

G-Tec Asia Pacific Pte Ltd



Working in Power

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