

NetXtend Flex N9000

Modular, Robust & Redundant, Highly-efficient

From Design Stages to On-Site Power Infrastructure
Experience The True Fail-Safe Features & Availability

The **NetXtend Flex Online UPS** presents high level of availability, true versatility, scalability and industry leading efficiency along with minimised CAPEX & OPEX mission-critical loads & systems in your power infrastructure.

The true modular topology with hot-synch/ hot-swap power modules design, three level highly-efficient power conversion, in which every module has its own processor DSP unit is inside and independent, all enables the **UPS NetXtend Flex** to secure & optimize the powerflow for both upstream and downstream paths.

NetXtend Flex gives the power of control to the user allowing to secure the power infrastructure via modular n+x redundancy that also can be used for load & capacity expansion for future requirements.

NetXtend Flex Online UPS, TSINE expertise behind and premium components inside, is engineered to meet the needs of demanding environments & businesses worldwide.



Product Snapshot

- ▶ Online, three level, the best in class AC/AC efficiency levels as 99% in ECO mode.
The flat efficiency curve from 35 % of load ensures maximum energy savings at every percentage of load.
- ▶ Modular, hot-swappable power modules concept, Scalable.
- ▶ Power modules has independent hardware and controllability,
Control of power modules decentralized, individual (no centralized control system).
- ▶ Robust & reliable operation, maximum availability and uptime for the systems & loads connected to the ups.
- ▶ Service-friendly design ensures rapid and easy maintenance and minimizes service costs
Automated load distribution within all system modules enables a modular n+x redundancy,
Eliminated single point of failures in even power module base.
Superior MTBF & MTTR values.
- ▶ High power density, minimised footprint, vertical and horizontal capacity expansion.
- ▶ Superior connectivity standards, global monitoring, quicker recovery.

Fields of Use



Individual LCD For Each Module

Each power module has an independent LCD, gives users' direct overview of status data and alarms in real time.



Userfriendly HMI

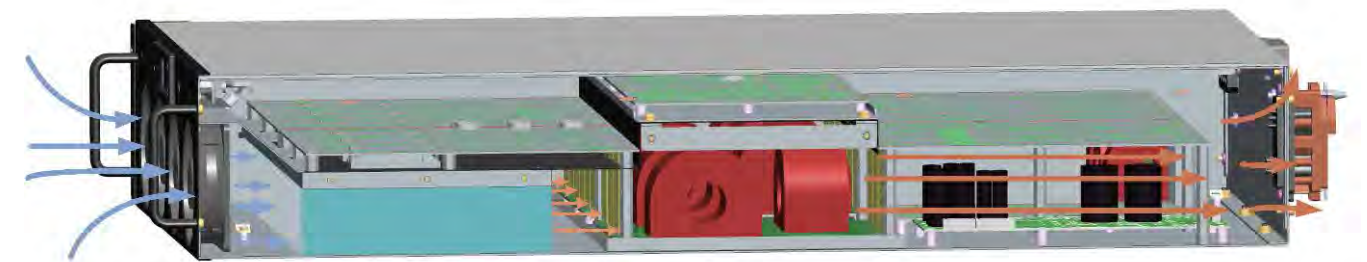
Provide graphical and text based information of alarms, status data, instructions that users can have more friendly and safer operation



Isolated Air Flow

The redundant hot-swappable power modules has unique mechanical design. In this design, the PCB boards and heat-sinks are in two completely different layers, which allows the UPS run in dusty environments, significantly improving its stability and environmental adaptability.

- ▶ Cooling air flows in the lower layer, keeping the upper PCB free of dust.
- ▶ One air flow channel ensures fans redundancy, even one fan fails, power module can run normally.



Tailored For High Reliability

Instead of discrete IGBT and SCR components, NetXtend Flex N9000 Series Modular UPS uses modular IGBT and SCR in Rectifier & Inverter, bringing in enhanced high reliability.

- ▶ All components in one module, less single point of failure, higher reliability.
- ▶ All components integrated as one modular design, smaller disparity
- ▶ Less space needed, UPS with compact design and higher power design
- ▶ Integrated inner thermal sensors display IGBT inner temperature directly



High Density, True Modular, Scalable

- High power density, footprint for 300kVA is 0.66 m², power density 409 kW/m², saving valuable space in data center applications.
- Scalable from 30kVA to 900kVA, max 30 power modules in parallel



True Modularity

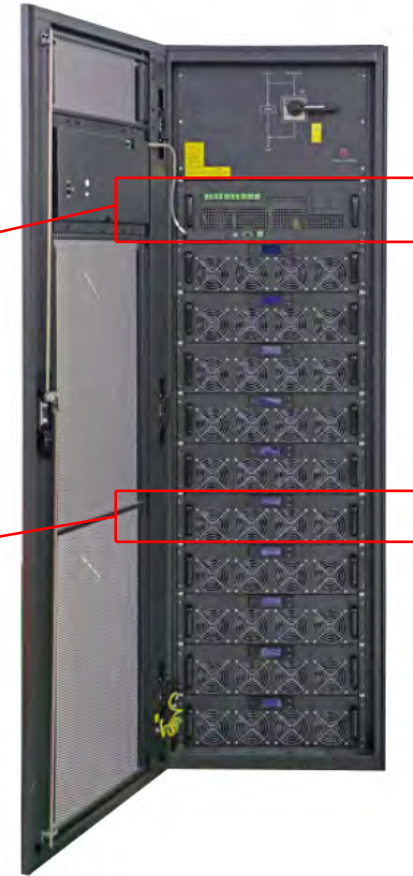
- True Modular, N+X
- Hot swappable power module and bypass & monitoring module.
- Additional charging module, extra charging current 50A×N for long time back up demanding applications.



Bypass & Monitoring Module.



Power Module.



Comprehensive Monitoring & Management

In each power module, information of critical components is monitored and displayed in real time, giving customers a view of inner status of the system and providing reminder information for maintenance.

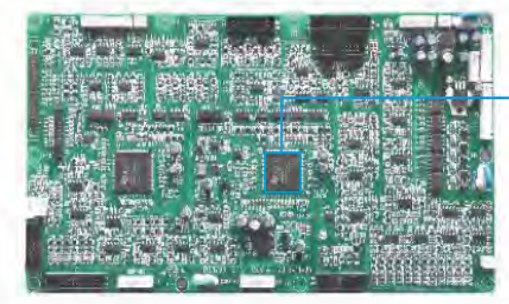
- Maintenance reminder, running time of capacitors & fans displayed and recorded.
- Comprehensive temperature monitoring for thermal abnormal detection.
- Prolonged battery lifetime via Intelligent Battery Charger.



Recording of Critical Waveforms

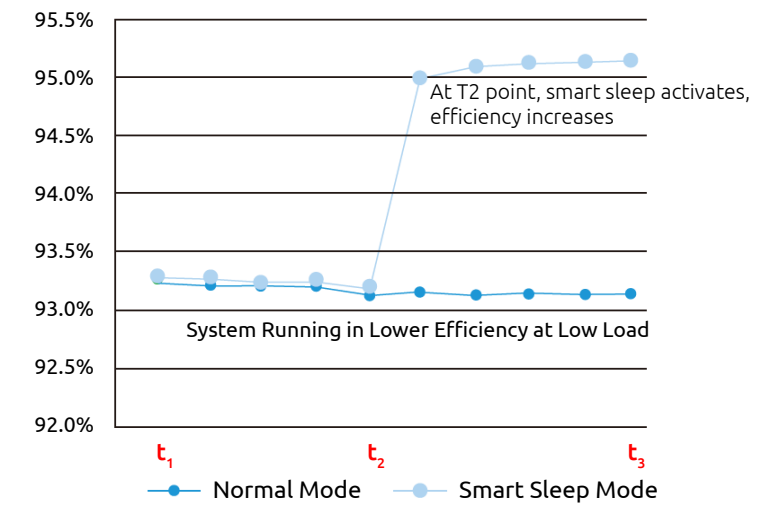
The UPS can record and save the data of the main parameters automatically when faults happen for further analysis.

- The UPS records data information and present as waveform for further analysis.
- The UPS easily spots the causes of the failures, avoid future similar faults.



Smart Sleep

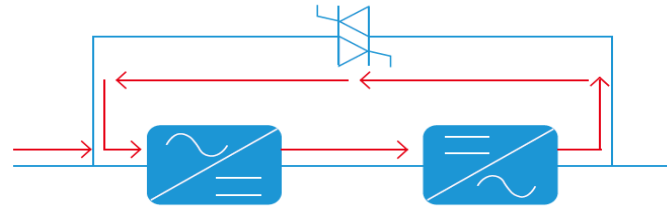
Smart Sleep function can intelligently make some power modules go to sleep when load is relatively low, improving the efficiency of the remaining power modules and saving customers on power and cooling costs.



- Improving efficiency, reducing power and cooling costs.
- Easy setting with just two steps. The user can select sleep mode & rotation period
- Power modules working in rotation, prolong the life time of the UPS.

Self-Aging Feature

Self-aging is an advanced feature applied in some cutting-edge UPS systems, self-aging function means simply that the UPS can load itself fully or partially under different load configurations, it is supplied by the mains power and with just a slight efficiency loss, it regenerates the power at the output as a feedback to the mains again so that without real load, the UPS can be used as load in tests. Thus saves more than 90% of energy.



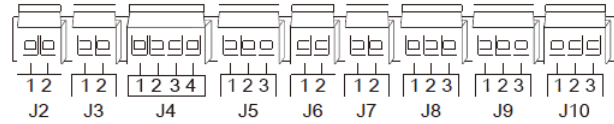
The user or inspection engineer can see that the UPS is really loaded and there is active and apparent power at the output.

- Simulate different load conditions without connecting to any real load, saving 90% of energy
- On site setting supported, easier factory testing.

Connectivity

PROGRAMMABLE DRY CONTACTS

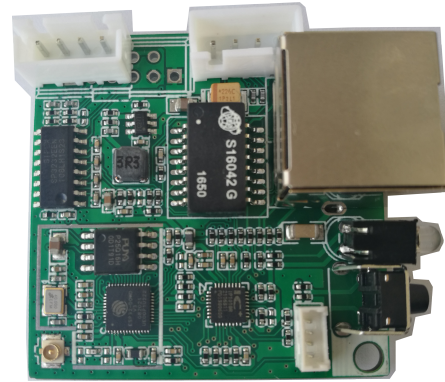
Available in All TSINE Three Phase UPS Systems; Customers can easily expand or modify the definition of each port.



- Generator Input
- Mains CB Closed
- BCB Status
- BCB Online
- Transferred to Inverter
- Transferred to Bypass
- Fault Cleared

Network Management Card

Available in All TSINE Three Phase UPS Systems; LAN or Wifi Connection Options, Optional, GSM Supported, E-mail and SMS Status Messages, Easy Web Monitoring & Management, Android & iOS Application, Real Time Monitoring & Management



MODBUS, RS485 Options

Available in All TSINE Three Phase UPS Systems; MODBUS over TCP/IP or RTU Industrial & SCADA Communication



Technical Specifications

UPS Rating [Unity Power Factor = 1]

| | | | | | | |
|----------------------|--------------------------------|---------|---------|-----------------------|---------|---------|
| Rated Power [kVA] | Available in 25 kVA - 1800 kVA | | | | | |
| Power Cabinets [kVA] | 150 kVA | 250 kVA | 500 kVA | 180 kVA | 300 kVA | 600 kVA |
| Power Modules [kVA] | 25 kVA/ 25 kW; P.f. 1 | | | 30 kVA/ 30 kW; P.f. 1 | | |

System Controller & User Interface

| | |
|---|---|
| Display Type | 10.4" Touch Colour LCD, LED System Status Indicators & Keyboard |
| Fail-Safe Design | In the event of a power module failure, the system will continue to operate uninterrupted. Each power module has its own redundant controlled and static bypass, Zero interruption to the load. |
| Available Languages | 5 Standard - EN-TR-SP-FR-RU |
| Power Analyser | kVA, kW, PF Info |
| Real Time Clock | Standard with Dynamic Estimation of Back Up Period |
| Event Log | 500 Events with Details & Info, Downloadable via USB-Ethernet Controlled Shutdown. Alerts sent directly to email in the event of a malfunction (Standard - up to 10 users) |
| Smart Event Notification & Scheduled Shutdown for Servers | Text message alerts sent directly to the user in the event of a malfunction (Optional) Scheduled Automatic Shutdown of Servers on Battery Mode (Standard) |
| On-Screen Parameters | Load Bar-Graph, 3 Phase Voltages & Currents & Frequencies, Battery Voltage, Status Info for Each Power Module, Static Bypass Module Parameters & Status Info, Battery Temperature |
| Alarms | AC Failure, DC Failure, UPS Module(s) Failure, Bypass Mode, Battery Test Failure, Over Temperature, Overload Operation, More Than 60 Other Alarms Listed in User Manual, Audible Alarms |
| Connectivity | SNMP-Remote Monitoring (MS Windows), TCP/IP, Monitoring Over Web Browser, Hot swappable smart slot card, RJ-45 interface port, USB, RS232, RS485, MODBUS, Optional GPRS/SMS Wireless, Programmable Dry Contacts |
| Communication with Power Modules | Serial, Isolated |
| Dry Contacts | 3 Programmable Dry Contacts for Input, 11 pcs Parameters, 4 Programmable Dry Contacts for Output, 15 pcs Parameters, 19 Dry Contacts, EPO Outputs in Total |

General Characteristics

| | |
|------------------------------|---|
| MTBF/ MTTR | Over 600000 Hours |
| UPS Type & Technology | VFI-SS-111 Online Double Conversion, Three Level Technology DSP Microprocessor Controlled, Hot-Swap Modular Architecture |
| Isolation Transformer | STANDARD For Flex-T Series |
| 62040-3 | COMPATIBLE |
| Power Factor | 0,9 or 1 kVA=kW Unity Power Factor |
| True Redundancy | N+X, N+1 Redundancy, True Modular UPS Topology |
| Parallel Configuration [N+1] | Up to 3 Power Cabinets and 1800 kW |
| Standard Protection Features | Input Power Limiting, Phase Reversal, Power Module Over Temperature, Over Current, High Temperature Alert, Smart Short Circuit, Regenerative Load, Current Limiting, Charging Current Limiting, Temperature Compensated Charging, Emergency Power Off (EPO). |
| Operating Conditions | 20 °C, <2400m Above Sea Level, <45% to 55% RH, for Best Performance |
| Cooling/ Isolation | Forced Air Cooling via Redundant Fans - Smart Fan Speed |
| Maintenance Bypass | STANDARD |
| Material [Casing]/ Colour | RAL 7021, BLACK |
| Cable Entry | REAR/FRONT BOTTOM |
| Operation Modes | Normal Mode: The input rectifier & output inverter operates in an on-line status to continuously supply power to the critical load. Battery Mode: Upon failure of the AC input source, the critical load is being continued to be supplied by the inverter, which derives its power from the battery system without any interruption. Recharge: Upon restoration of the AC input source, the UPS simultaneously recharges the battery and provides regulated power to the critical load. Static Bypass: The static bypass shall be used to provide transfer of critical load from the Inverter output to the bypass source. Internal Manual/ Mechanical Bypass: The UPS is equipped with an internal, make before break, bypass switch. |

PHYSICAL

| | | | | | | |
|-----------------|----------------------|---------------|-----------------|---------|---------------|---------|
| Ratings | 150 kVA | 250 kVA | 500 kVA | 180 kVA | 300 kVA | 600 kVA |
| Weight [in kg] | System Frame 178 | 242 | 660 | 178 | 242 | 660 |
| | Power Module 32.3 kg | 25 kVA module | | 32.3 kg | 30 kVA module | |
| Dimensions [mm] | System W 600 | 600 | 2000 | 600 | 600 | 2000 |
| | Frame D 1100 | 1100 | 1050 | 1100 | 1100 | 1050 |
| | H 1600 | 2000 | 2000 | 1600 | 2000 | 2000 |
| Power Module | wdh | | 460 * 790 * 134 | 3U | | |

Efficiency Levels

| | |
|---------------------|---|
| AC~AC Mode, On-line | Up To 97% at 100% Rated Load, 95.5% at 50% Rated Load |
| Eco Mode | > 99% |
| Battery Mode | > 96% |

Input Characteristics

| | |
|---------------------------|---|
| Rated Voltage & Range | 380/400/415 VAC 3P+N+G -24%~20% 304~478Vac full load; 228V~304Vac, within these tolerances, the output load shall decrease linearly as per the minimum utility voltage. |
| Rated Frequency & Range | 50/60 Hz, 40 ~ 70 Hz |
| Power Factor | ≥ 0,99 Active Power Factor Correction Circuitry |
| Current Distortion [THDi] | < 3% @ Full Linear Load |
| Power Walk-In | Between 1-30 seconds, with 1 s intervals |

Bypass Characteristics

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|-------------------------|---|
| Ratings | BYPASS CAPACITY IS SIZED AS THE SYSTEM FRAMES CAPACITY SINCE THE BYPASS IS CENTRAL THE CAPACITIES ARE AS FOLLOWS: 150-180-250-300-500-600 kVA |
| Rated Voltage & Range | 380/400/415 VAC L-L, 3P+N+G CAN BE SET -40%~+25% |
| Rated Frequency & Range | 50/60 Hz, CAN BE SET ±1 Hz, ±2 Hz, ±3 Hz |
| Bypass Overload | 110% Rated Load, Continuous 125% Rated Load for 5 Mins, 150% Rated Load for 1 Min. |

Battery | Back Up Power

| | |
|--|--|
| Rated Voltage [DC] | ±240VDC, 32 to 44 * 12VDC (Adjustable) VRLA AGM Sealed Lead Acid, Gel, Lithium |
| DC Input Range | Final Discharge Voltage can be 1.65Vdc or 1.7Vdc |
| Ai-BM | Temperature Compensated 4 Stage Charging, Manual & Scheduled Battery Test, |
| Modular Hot-Swap Battery Charging Capacity | (Optional) Real Time Dynamic Remaining Back Up Calculation, Scheduled Automatic Shutdown of Servers on Battery Mode, |
| Operating Temperature | Modular hot-swappable battery pack modules (Optional), 25% of Rated Power, 25°C |

Output Characteristics

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|--------------------------------------|--|
| Rated Voltage & Accuracy | 380/400/415 VAC 3P+N+G ± 1% For Static Load, for Dynamic Load (Step Load) : ± 5% |
| Rated f. & Accuracy | 50/60 Hz (Selectable), ±1% (Synchronized to Mains, Adjustable up to ±5%), ±0,1% (Free Running Mode, Selectable). |
| WaveForm | Pure Sine Wave - Sinusoidal |
| Voltage Distortion [THDv] | < 1% (Linear Load), < 4% (Non-Linear Load) according to IEC/EN62040-3 |
| Crest Factor | 3:1 |
| Unbalanced Load & Acceptable Load PF | Compatible with Operation on 100% Unbalanced Load 0.3 to 1 |
| Overload Operation | 60 minutes @ 110% Rated Load 10 minutes @ 125% Rated Load 1 minutes @ 150% Rated Load Switches to Bypass over 150% Rated Load |

Transfer Times

| | |
|-------------------------|-----------------------|
| From Inverter to Bypass | 0, Zero, milliseconds |
| From Mains to Battery | 0, Zero, milliseconds |

Ambient Characteristics

| | |
|-----------------------------|--|
| Ambient Temperature | OPERATING TEMPERATURE RANGE -10°C - 40°C RECOMMENDED OPERATING TEMPERATURE 15°C - 25°C STORAGE TEMPERATURE -30°C ~ 70°C |
| Altitude/ Relative Humidity | < 1000m above sea level without derating of output power, output power is derated 1% per 100m from 1000 to 2000m 0% ~ 95% (non-condensing) |
| Noise | < 65dB @ 100% load, 62dB @ 45% load |

Standards & Certifications

| | |
|--------------------|---|
| Safety | EN 62040-1, EN60950, CE Mark |
| EMC | EN 62040-2 Class C2, CE Mark - Electro-magnetic Compatibility |
| Performance | EN 62040-3 (VFI-SS111), CE Mark |
| Quality Management | ISO 9001:2015, TUV, CE Mark |

Optional Features & Accessories

| | |
|-------------------------|-------------------------------------|
| Parallel Redundancy | Horizontal Power Scaling, Optional |
| Hot-Swappable Battery | Optional |
| Extended Runtime | Optional |
| M. Bypass Cabinet | Optional |
| Custom Input Voltage | Optional |
| IP Classified Enclosure | Standard IP21, Optional up to IP 66 |



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