



Working in Power

TORNADO PLUS

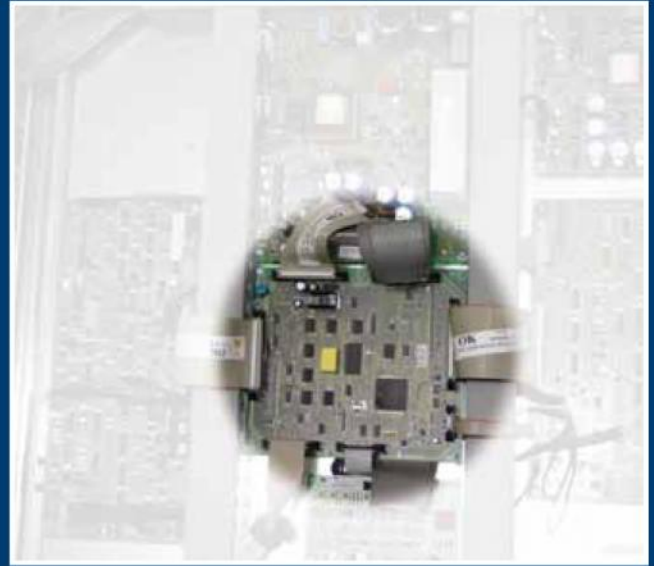
online UPS

100 - 120 - 160 - 200 UPS

- LOCAL AREA NETWORKS (LAN)
- SERVERS
- DATA CENTERS
- INTERNET CENTERS (ISP/ASP/POP)
- INDUSTRIAL PLCS
- EMERGENCY DEVICES (LIGHTS/ALARM)
- ELECTRO-MEDICAL DEVICES
- TELECOMMUNICATIONS DEVICES
- INDUSTRIAL APPLICATIONS

The **TORNADO PLUS** and newly added **TORNADO PLUS**. (IGBT Rectifier) range from 100-120-160-200 kVA three-phase models and uses double conversion on-line technology (VFI) with an isolation transformer on the inverter output.

The load is powered continuously by the inverter with a filtered, stabilised and regulated sinewave supply. The input and output EMI filters considerably increase the immunity of the load to mains disturbances and surges.



Digital Control

TORNADO PLUS & TORNADO PLUS I provides maximum protection for vital 'mission critical' networks, security applications (electromedical) and industrial applications thanks to its outstanding mechanical and electrical design.

TORNADO PLUS & TORNADO PLUS I is equipped with BATTERY PROTECTION. This helps to prolong battery life and performance.

It has:

- *Cyclic charging*
- *Two voltage level charging*
- *Temperature compensation charging*
- *Protection against deep discharge*
- *Battery self test*
- *Compatibility with open vented lead acid and NiCad battery.*



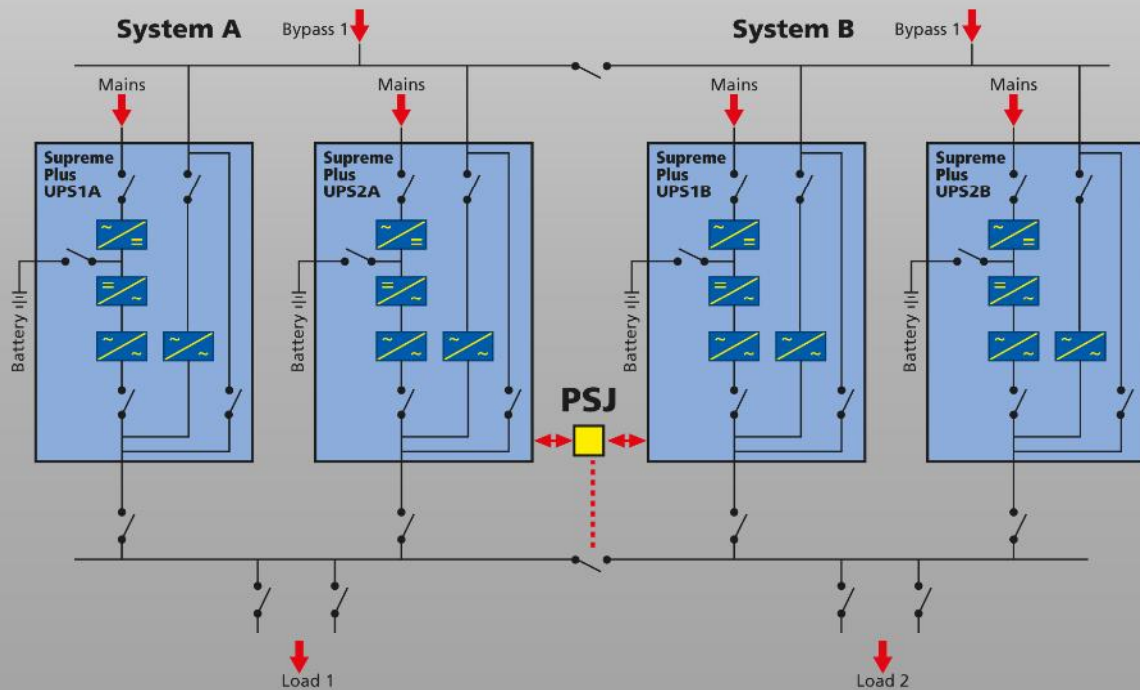
Main Features

- Large LCD screen with graphical display and improved high output power factor at 0.9
- Reliable, filtered, stabilised and regulated sinewave output (double on-line conversion technology VFI according to EN50091-3 specifications) with filters for atmospheric disturbance suppression
- High reliability: IGBT technology, full microprocessor control with no-break static and manual bypasses
- High level diagnostics: event log with 128 messages, states, measurements and alarms - available from the built-in LCD in several languages
- The UPS may be configured with the RS232 serial port (flash upgradable)
- Reduced noise levels: high frequency inverter bridge used (>16 kHz: above audible range)
- Low loss high efficiency up to 94% in On-line mode utilizing IGBT technology and up to 98% in the other operating modes: "Economy Mode", Smart Active Mode, and Standby/Off Mode.
 - Economy Mode: uses Line Interactive (VI) technology to power less critical loads from the mains supply for certain periods. The function can be set from the front panel keypad or remotely using software

Flexible Configurations

Optional Product for Better Flexibility
TORNADO is suitable for application of all types, from IT to the most demanding industrial applications.

Thanks to the broad offer of accessories and options, complex configurations and architectures can be produced, guaranteeing a maximum availability of power supply for the most critical loads.

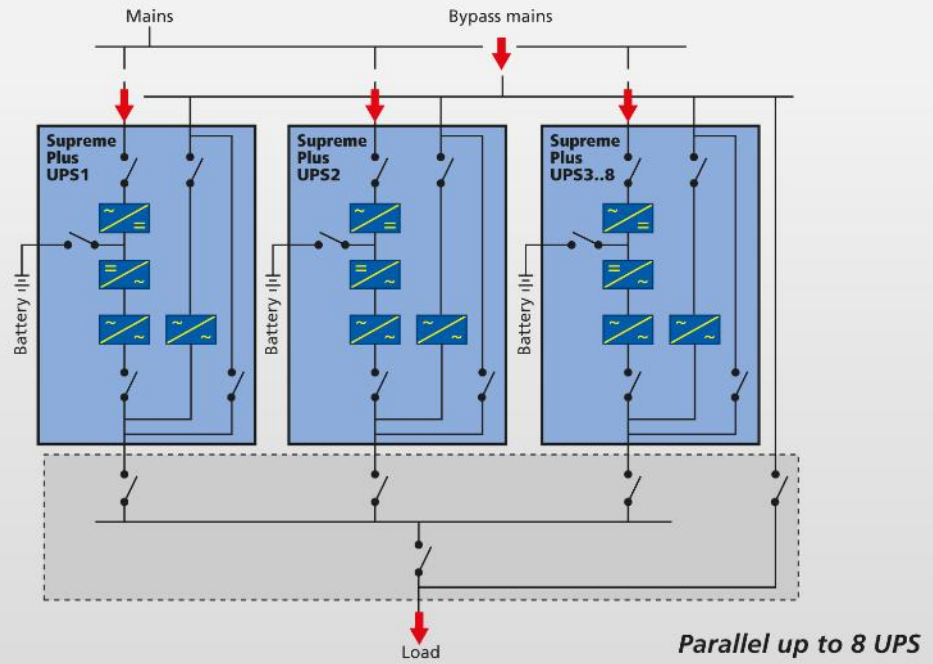


Distribution Redundancy: PSJ

The Parallel Systems Joiner (PSJ) enables the connection of two UPS groups operating in parallel configuration through a power coupling switch.

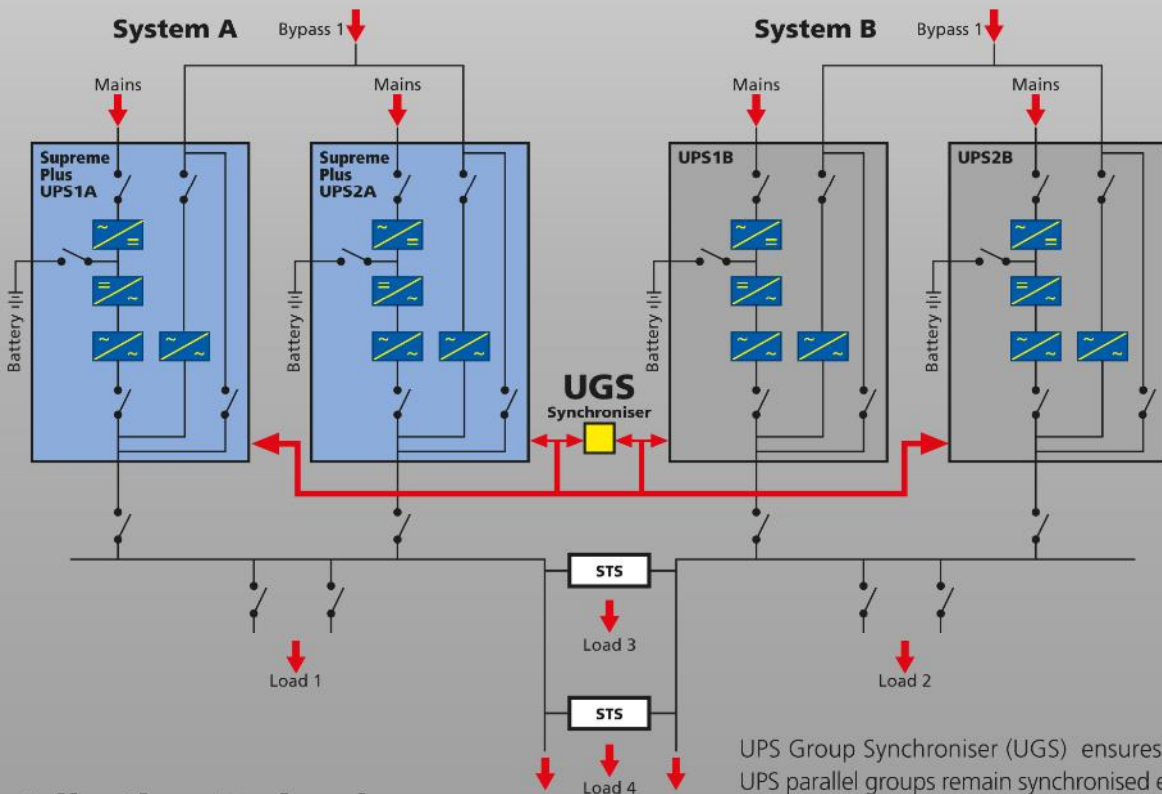
The Slave Group is permanently synchronised to the Master Group. Should one of the UPS in one of the parallel groups fail, the PSJ will automatically connect the remaining UPS to the other group.

UPS Redundancy: Parallel



mission critical and large scale industrial applications

Distribution Redundancy: UGS



UPS Group Synchroniser (UGS) ensures 2 or more UPS parallel groups remain synchronised even during a mains supply failure.

The UGS also enables Supreme Plus to be synchronised with an independent power source and even with different rating.

TORNADO PLUS UPS Specification

MODELS	100i & 100	120i & 120	160i & 160	200i & 200
POWER (kVA) / (KW)	100 / 90	120 / 108	160 / 144	200 / 180
INPUT				
Nominal Voltage	380 - 400 - 415 Vac three phase			
Voltage Tolerance	+ 20%, -25%			
Frequency	45 \pm 65 hz			
Power Factor	>0.99 for Supreme Plus i, 0.9 to 0.96 depending on options			
Current Distortion	< 3% (According to IEC62040-3)			
Soft Start	0 to 120s selectable			
Standard Fittings	Back Feed Protection; separable bypass line			
BATTERY				
Type	Vented acid / VRLA AGM / GEL / NiCd			
Residual Ripple on Voltage	< 1%			
Temperature Compensation (V/°C)	- 0.11%			
OUTPUT				
Active Power at pf1 (KW)	90	108	144	180
Nominal Voltage	380 - 400 - 415Vac three phase + N			
Static Stability	\pm 1%			
Dynamic Stability	\pm 5% in 20msec to class 1 of EN62040-3			
Voltage Distortion with Linear Load	< 1%			
Voltage Distortion with Distorting Load	< 3% (According to IEC62040-3)			
Frequency:	50 to 60 Hz auto sensing with \pm 2% as default (selectable from \pm 1% to \pm 5%)			
With Mains Present				
Without Mains Present	\pm 0.05%			
Waveform	Sinusoidal			
Crest Factor	3:1			
Overload	110% for 60' ; 125% for 10' ; 150% for 1'			
ENVIRONMENTAL				
Remote Reports	Voltage-free contacts			
Remote Commands	EPO and bypass			
Communication	Double RS232 + Remote Contacts + 2 Communication Interface Slots			
Efficiency	Up to 98% at stand-by mode			
Dimensions (LxDxH):				
Supreme Plus i	800x850x1900		1000x850x1900	
Standard	800x800x1900			
6P + CN	1070x800x1900			
Weight (Kg)				
Supreme Plus i	730	785	865	1000
Standard	620	650	730	830
Noise Level	60 to 68 dBA@1m			
Operating Temperature	0°C - 40°C			
Relative Humidity	< 95% non condensing			
Index of Protection	IP20			
Color	RAL 7035			
Standards	European Directive LV2006/95/EC, EMC 2004/108/EC Safety IEC EN 62040 - 1; EMC IEC EN 62040 - 2; Performance and Test IEC EN 62040 - 3			
Classification as per IEC 62040-3	(Voltage Frequency Independent) VF1-SS-111			

Option:

Communication Software & Accessories; Isolation transformer; Parallelable to 8 units

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

TECHNICAL ASSISTANCE SERVICES

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

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.

- The **TELEGUARD** software package provides remote 24 x 7 UPS supervision. TeleGuard can interrogate G-TEC UPS connected to a local telephone line to check on their operating logs and system status.

Should the UPS report an alarm condition, the UPService Call Centre is immediately notified and a dedicated customer response activated. Routine site reports can be sent automatically to customer personnel.

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

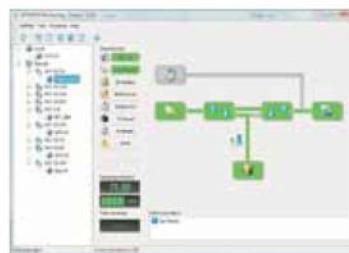
Communication and Power Management Solutions

ADVANCED COMMUNICATION

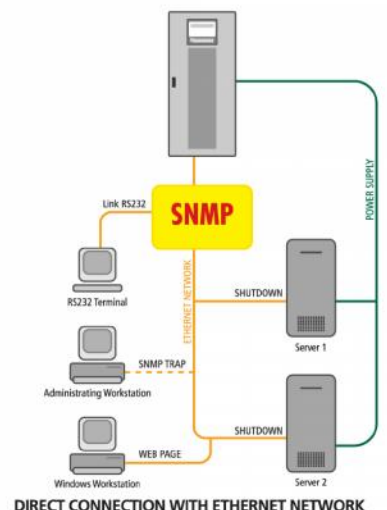
- Compatible with TELEGUARD for remote maintenance
- Advanced, multi-platform communication, for all operating systems and network environments: **PowerShield³** supervision and shut-down software included, with SNMP agent, for Windows NT 4.0, XP, Vista, Mac OS 10.x, Linux, Novell operating systems. The FC is equipped with a cable for direct connection to the PC (Plug and Play)
- *Can also provide shut-down software for: IBM AIX; Free BSD; BSDI UNIX; BSD/OS; SCO Unixware; SCO Openserver; Sun Solaris; Compaq True64; HP UNIX; HP OpenVMS; HP Openview; SGI Irix MIPS; NCR UNIX
- Double RS232 serial port
- Network adapter slot for SNMP agent
- EPO (Emergency Power Off) shut down input contact
- Remote control panel (optional)



DETAILED UPS PARAMETER DISPLAY
PowerShield³ provides all the information required for first level diagnostics.



BLOCK AND FUNCTIONAL DIAGRAMS
PowerShield³ also displays the UPS in block format providing the user with information regarding the operating status.



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