



GUTOR PDW AC UPS

Customizable double-conversion UPS system with galvanic isolation supporting long backup times.



Gutor PDW is an industrial online double conversion three-phase UPS system with thyristor-controlled rectifier and IGBT-PWM inverter designed to secure the critical applications in harsh environment.

Designed for Harsh Environments

- Transformer base provides full galvanic isolation to prevent electric shock and suppress harmful electrical noise
- Robust industrial enclosure up to IP42/ NEMA 2*
- Seismic design for peak spectral acceleration up to 1.0 g*
- Operation temperature up to 55°C
- Printed circuit boards have conformal coating to protect against moisture, dust, chemicals, and temperature extremes
- Tinned copper bars for harsh environment are available as an option

Adaptable and qualified design

- Extensive range of input and output voltage
- The rectifier is sized to simultaneously supply 100% load and boost charge the battery
- Strong chargers support various battery types and address long backup time

*Higher options available upon request

Highest Reliability

- High Mean Time Between Failures (MTBF)
- Long product lifetime with minimal servicing required
- Parallel or redundant capable to increase availability
- Its controller firmware and hardware are compliant with IEC 60880 for NPP (Nuclear Power Plant) applications
- Independent System Surveillance (ISS) provides a health supervision of all the critical components to prevent the system from freezing and shutdown

Smart communication

- Display with 7 languages
- Relay board, 16 fail-safe NO/NC contacts
- A wide communication protocol allows Gutor PDW to be seamlessly integrated into your monitoring system
 - Freely programmable alarms and meters
 - Communication via modbus, TCP / IP, IEC 61850, RS485
 - Web interface for remote monitoring
 - Gutor PDW supports EcoStruxure
- Cybersecurity according to IEC62443 to meet requirements from GDPR and California law SB-327

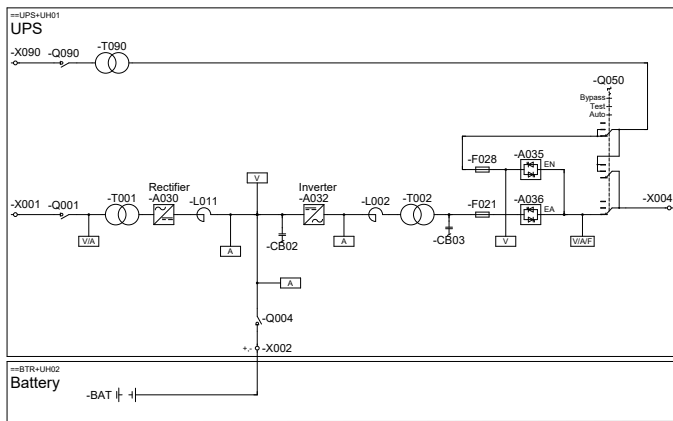
Gutor PDW Technical Data

UPS input		
Rectifier input voltage (three-phase)	380 / 400 / 415 / 480 / 600 / 690 (and others)	
Voltage tolerance		
DC in tolerance	+/- 10%	
For function	-15/+10%	
Bypass input voltage		
Three phase	380 / 400 / 415 / 480 / 600 / 690 (and others)	
Frequency	50/60 Hz +/- 8%	
Inrush current	<10x IN (input current)	
Intermediate DC circuit		
Voltage	110 / 125 / 220 / 400 VDC	
Rectifier voltage tolerance	+/- 1% I-V characteristic	
DC ripple voltage	with battery capacity of 3x nominal current: ≤ 1% rms without battery: ≤ 2% rms, optional without battery: ≤ 1% rms	
Float voltage at -10% line power	100 – 115% programmable	
Boost voltage range at nominal line power	100 – 125% programmable	
Boost charge time	1 – 24 hour programmable	
Charging current limitation	programmable	
Inverter input range (output tolerance +/- 1%)	+20/-15%	
Inverter maximum input range (output tolerance +/- 10%)	+/- 25%	
UPS output		
Nominal UPS Inverter rating	kVA at PF 1.0	
Voltage		
Three phase	208 / 380 / 400 / 415 (and others)	
Voltage tolerance		
Static within 0 – 100% load	+/- 1%	
Dynamic at 100% load surge	+/- 4%	
Regulation time	<25 ms	
Overload	105% continuous	
Inverter 1 min	150%	
Inverter 10 min	125%	
Bypass 100 ms	1,000%	
Short-circuit inverter 100 ms	200%	
Frequency	50/60 Hz	
Frequency stability, free running	<0.01%	
Synchronization range	0.5/1/2/4/6/8%	
Slew rate single units	0.25/0.5/1/2/4 Hz/s programmable	
Slew rate redundant system	4.0 Hz/s	
Wave form	sinusoidal	
Admissible output crest factor	unlimited	
Distortion factor		
Linear load	≤ 3%	
Nonlinear load according to IEC 62040-3	≤ 5%	
Allowable power factor	0.4 lag – 0.9 lead	
Fault clearing capability	30% of UPS nom. current rated gG fuse (IEC 60269) within 10 ms and bypass available	
General Data		
Ambient temperature range for storage	from -20 to +70 °C	from -4 to +158 °F
Ambient temperature range for operation	from -10 to +55 °C	from 14 to +131 °F
Altitude above sea level	1,000 m without load de-rating	3,280 ft without load de-rating
Allowable air humidity	<95% (non-condensing)	
Noise level standard n+1 fan system	60 – 75 dBA depending on type	
Degree of protection	IP20 according to IEC 60529	
Paint	light gray, RAL 7035 structure	
Efficiency	up to 91% depending on type	
Cooling	forced ventilation (two speed) with n+1 redundant, monitored fans	
Standards		
Safety	IEC/EN 62040-1	UL1778/CSA 22.2-107.3
EMC	IEC/EN 62040-2	FCC Part 15 Subpart B, Class A
Performance	IEC/EN 62040-3	NEMA PE-1
Conformity	CE-Label	
Seismic	up to 1.0 g	
Offer Sustainability	REACH, ROHS (2011/65/EU)	



Highly-Customizable Design and Flexible Configuration

Typical Single-Line Drawing



Basic configuration

- Single UPS
- Rectifier input switch
- Input & output transformers
- Fixed charging voltage IU characteristic
- Thyristor-controlled 6-pulse rectifier (supplies 100% load and charges the battery simultaneously)
- Bypass static switch EN
- Battery-capacity test (full discharge with current load)
- Human-machine interface with additional LEDs for direct alarm display
- Bottom cable entry with ground terminal
- Alarm relays for battery operation, common alarm and others
- N+1 monitored two-speed fans
- Ambient temperature ranges from -10 to +40 °C
- Protection IP20
- Pearl light gray, RAL7035 structure
- Battery MCCB in UPS
- 3-position manual bypass switch

Battery Voltage & UPS Ratings

Voltage (VDC)	110	125	220	400
	-	-	-	-
	10	10	10	-
	15	15	15	-
	20	20	20	-
	30	30	30	-
	40	40	40	-
	-	-	-	-
UPS ratings (kVA)	60	60	60	-
	80	80	80	-
	-	-	100	-
	-	-	120	120
	-	-	160	160
	-	-	-	-
	-	-	-	220

Higher ratings and other voltages on request – three phase

Power Modules

- Separate power modules for rectifier and inverter
- Modules can be kept on stock for fast servicing
- Monoblock design leading to high MTBF

Wide range of Battery Supported

- Lead-acid, NiCd, Li-ion and sodium nickel batteries
- Support 110, 220, & 400 battery levels
- Transformer Accepting Wide Input Ranges
- Input & output transformers as standard
- Optional bypass transformer

Mechanical Structure

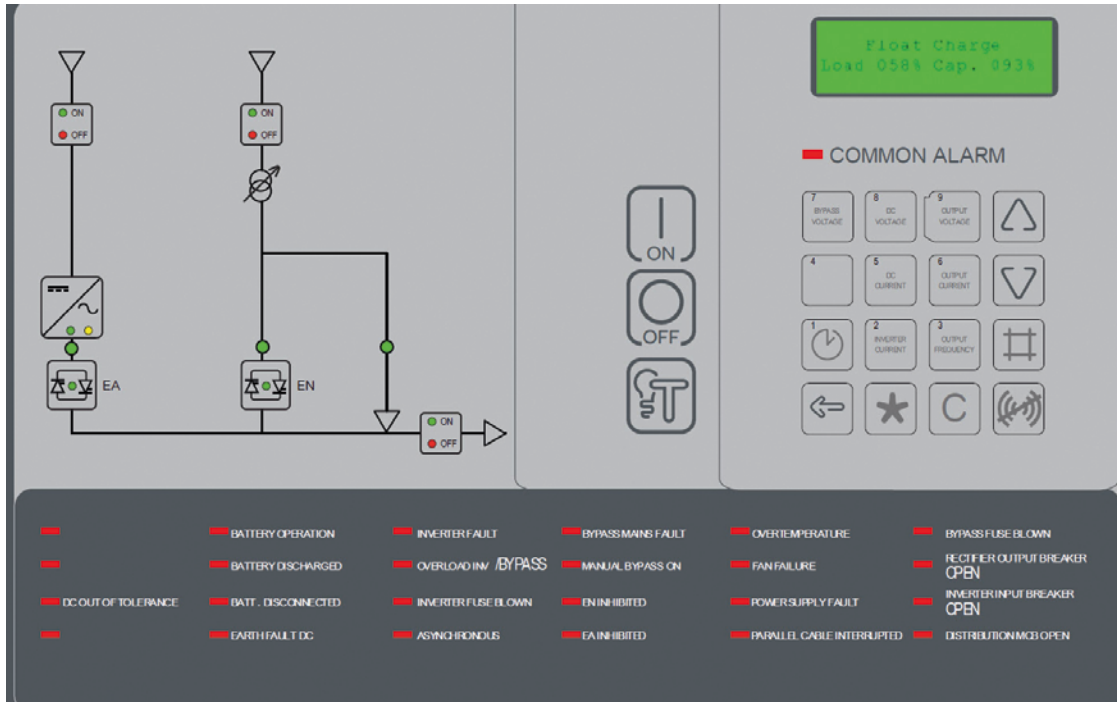
- Flexible configuration
- Up to IP 42 (higher on request)
- Customized cabinet colours
- Seismic design robust cabinet up to 1.0 g (reinforcement upon request)

Optional Features

- Redundant/Parallel Load Sharing Configuration
- Redundant/Parallel Dual Configuration
- Input harmonic filter
- Voltage adaptation for rectifier, bypass or output
- Higher system ratings
- Bypass transformer or stabilizer
- Analog and digital meters (72 x 72mm or 96 x 96mm)
- Digital outputs (NO/NC relay output)
- Communication (NMC, RS-485 Modbus or TCP, IEC 61850)
- Inverter static switch EA
- Independent static bypass switch (ISBS) control
- Voltage limiting unit (to withstand Forsmark event)
- DC & AC ground fault alarm
- Customized footprint
- Air filters, color, space heaters, panel lighting
- Battery protection (Fuse, MCCB)
- Battery temperature alarm
- Battery monitoring system
- Battery coupling
- Downstream distribution
- Converters (AC/DC, DC/DC)



Human-Machine Interface



Operational parameters

- Selectable second display language
- Bypass operation
- Boost charge
- Auto boost (equalize) charge
- Battery-capacity test
- Battery-monitor test (optional)
- Set date/time

System measurements

- Load in percentage of nominal kVA rating
- AC rectifier input voltage and current
- AC bypass input voltage
- Total DC current, battery voltage, and battery current
- Battery temperature (with optional sensor)
- AC Inverter current
- AC output voltage, current, and frequency
- AC output peak current
- Battery backup time remaining (optional with string type battery monitor)
- Event log with date and time (operating mode changes and alarms)

System alarms

- Input power failure
- DC earth fault
- Inverter fuse blown
- DC out of tolerance
- Bypass input power failure
- Rectifier fuse blown
- Fan failure
- Internal PSU fault
- Battery discharged
- System overtemperature
- EA inhibited (UPS output static switch)
- Battery disconnected
- Inverter ON
- EN inhibited (Bypass static switch)
- Battery operation
- Boost (Equalize) charge ON
- Manual bypass ON
- Rectifier failure
- Rectifier ON
- Asynchronous
- EA ON (UPS output static switch)
- External horn
- Inverter failure
- EN ON (Bypass static switch)
- Overload inverter/bypass