

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

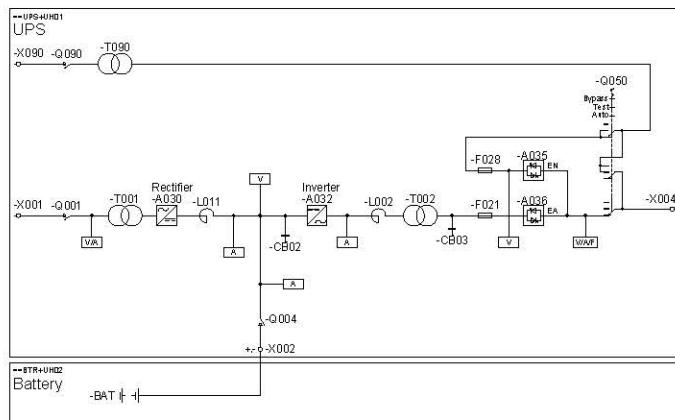
Gutor PDW Technical Data

| 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 | 10 | - |
| 15 | 15 | 15 | 15 | - |
| 20 | 20 | 20 | 20 | - |
| 30 | 30 | 30 | 30 | - |
| 40 | 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

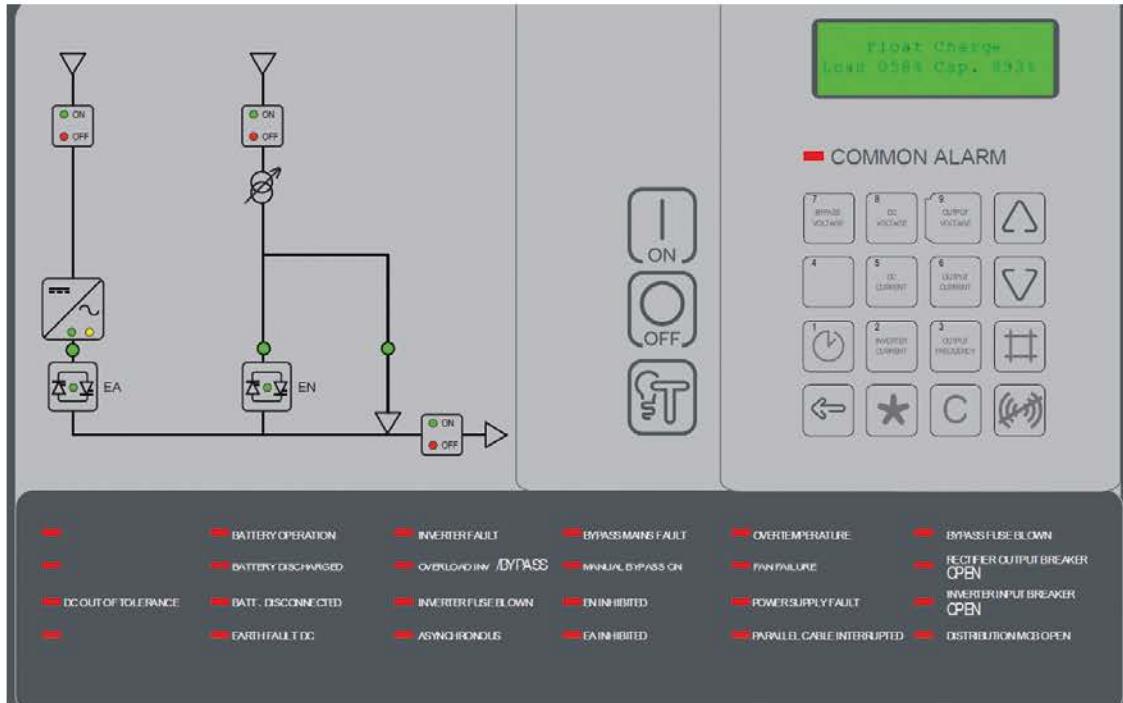
Mechanical Structure

- 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