PRIMAX TECHNOLOGIES | TRYSTAR

P600 Series

Chargers & Backup Power Systems 24V-48V-125V- 250V

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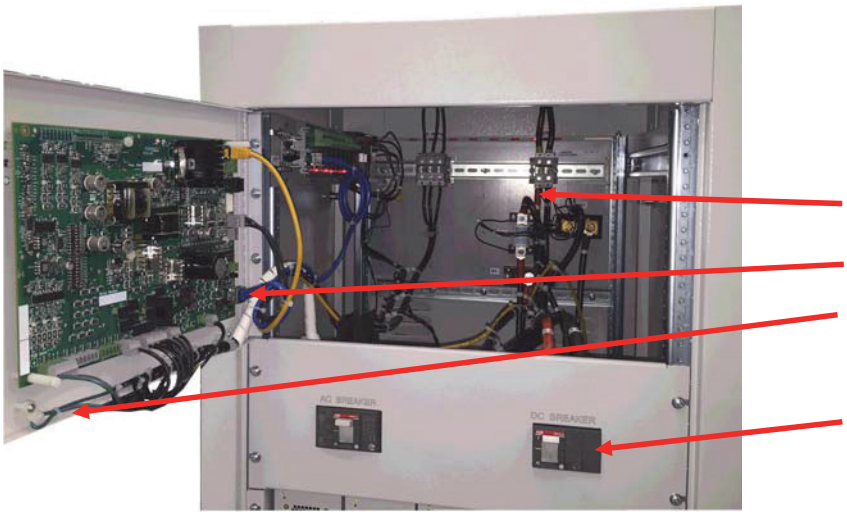
Trystar **P600 series** delivers modular and cost effective solutions for your DC backup systems. Packaged as a single module unit or within a complex system, the P600 meets your application's demands. The broad range of controls and options fits virtually any DC backup specification while offering better efficiency and communication.

WHY USE THE TRYSTAR P600 SWITCHMODE DESIGN?

- **Maintenance flexibility:** Specialized technicians are no longer required. The modular design of the Trystar P600 allows power modules to be swapped quickly and efficiently.
- **Redundancy/N+1 and scalability:** Having multiple power modules in a system helps to manage emergencies: the inherent redundancy of an N+1 configuration can improve reliability and availability of your dc systems. Adding more units for future expansion becomes very easy and cost effective with the Trystar P600.
- **Hot swap and easy swap:** Servicing and repairing legacy chargers requires specialized knowledge. Both Trystar P600 configurations are considered "plug and play" . Modules are interchangeable or hot-swappable, very easy to install, maintain and service.
- **Small footprint and high power density:** We can fit up to 5 modules in a 19 in.-5U sub-rack for a total of 200A at 125Vdc. Sub-racks can be connected in parallel to fit your requirements.
- **Extend battery life:** The very low total ripple energy content of the Trystar P600 optimizes battery life.
- **Clean power:** Trystar P600 unity power factor & very low THDi reduce electrical pollution reflected on the grid. The Trystar P600's high efficiency also helps to save energy.
- **Easy to upgrade and refurbish:** The Trystar P600 is perfect to replace outdated chargers while keeping the existing enclosure and installation infrastructure.
- **Better sensitive load protection:** tighter voltage regulation protect your sensitive load from failing over time due to the dynamic dc voltage swing.
- **Compatibility:** The Trystar P600 is compatible with the legacy batteries such as Lead acid and Ni-Cd as well as the Li-Ion new designs. It uses CAN-bus communication capabilities to communicate with connected batteries while adjusting its operational parameters to preserve battery life and safety.
- **Li-Ion battery systems:** The Trystar P600 can communicate directly with our Li-Ion battery systems. It is your best option when considering Li-Ion for stationary applications.

- Hot-Swap and EZ-Swap Configurations
- Dual voltage power system
- 125Vdc up to 1000A per system
- High availabilty backup system
- NEMA PE5 compliant
- High efficiency
- Unity power factor
- ≤ 5% THDi
- N+1 or N+X configuration



INDUSTRIAL GRADE (DIN) TERMINALS

CONTROL AND ALARM BOARD

SECURE FRONT ACCESS THROUGH SWING DOOR NO NEED FOR REAR OR SIDE ACCESS

AC AND DC BREAKERS

Features

UL/ANSI 1012 Listed, CSA C22.2 107.1 certified, ISO 9001 Quality control, high frequency based rectifier c/w double wound isolation transformer, electronic control, current limiting and voltage regulation modular construction using the latest power and microelectronic devices.

Basic design features

Electrical:

System:

- Input Voltage: 120*-208-240-480-600Vac, 1 & 3 phase
- Output Voltages: 24-48-125-250-380-500Vdc nominal
- Output power: Up to 5kW/module at 125Vdc at 50ºC and 5.5kW at 40ºC
- Frequency: 50-60Hz
- THD < 5%
- Power factor: 0.99
- Efficiency/module: 92%
- Static load regulation: ±0.5% at +10/-12% input voltage, ±5% frequency and 0-100% load
- Dynamic load regulation: =<1% from 10-90% on resistive load
- Recovery time: 2 cycles
- Individual indication LEDs for alarm and status
- MTBF: 150,000 hours typical
- MTTR: Less than 5 minutes Hot swap configuration and less than 10 min for EZ swap configuration
- Output ripple (mVrms on resistive load):

Mechanical:

Enclosures:

NEMA 1-IP20 Protection c/w hinged front access door

Wall mount or freestanding

Forced air cooling

Grey ANSI 61 grey powder paint or RAL7035

Numbered PVC copper wire (standard)

N.B. Floor mounted models are provided with 3 in. (75mm) clearance at bottom to facilitate handling by lift truck, pallet truck or slings

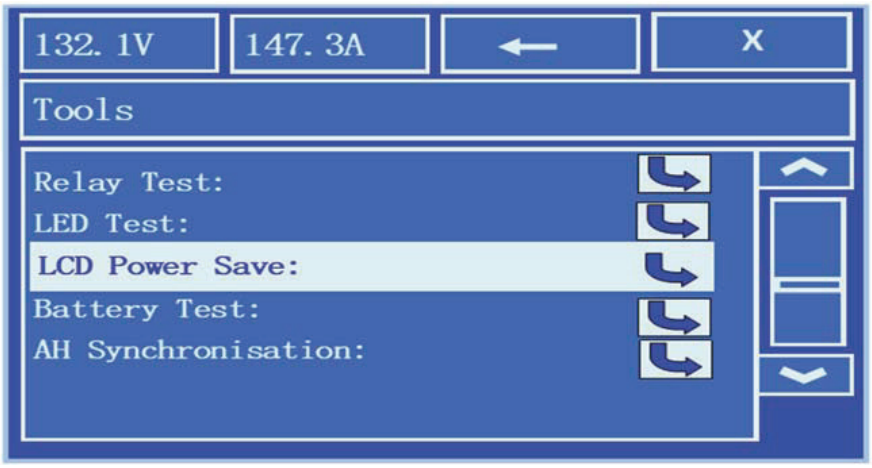
P60 individual power modules

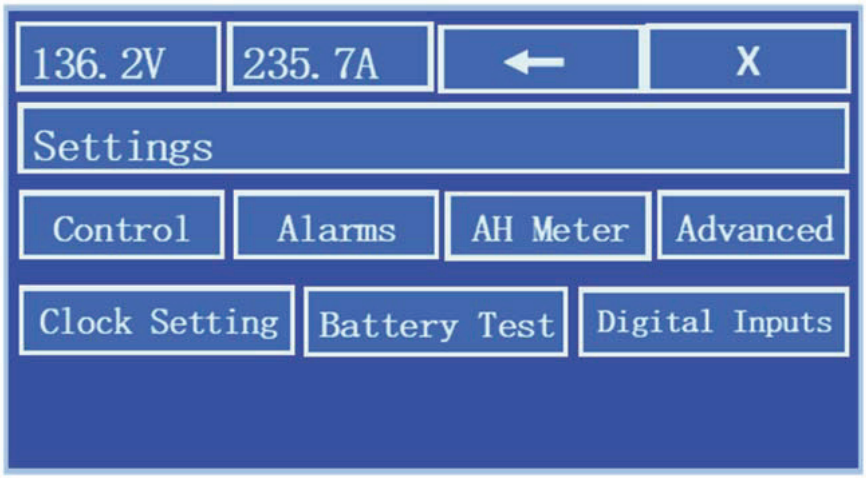
- Vertical in EZ-Swap configuration
- Horizontal mount in Hot-Swap 19”rack configuration
- Protection: NEMA 1 - IP20
- Weight: 7.5Kg - 17lbs

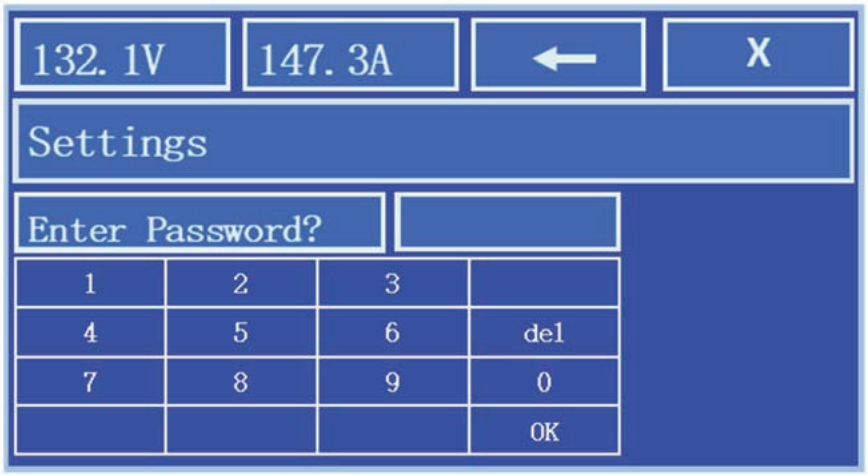
	48/24Vdc	125Vdc	250Vdc	>250Vdc
P600T:	30	100	200	1%
P600TT	30	30	100	0.5%

Protection: Soft start, Automatic current limiting adjustable from 5% to 100% of nominal rating, Input thermal-magnetic circuit breaker and DC output fuse. Surge suppression on input and output, Reverse polarity.

*120V input: unit output power shall be de-rated







Environmental:

- Audible noise: < 65dBa at 1m (3.3ft)
- Ventilation: forced cooling
- Heat dissipation: 1500Btu per module at full load
- Operating temperature: -20^{0}C to +50^{0}C
- Operating humidity: up to 95% non condensing
- Altitude de-rating:

  0% for the 1st 1000m (3300ft)

  7% per 1000m(3300ft) over 1000m(3300ft)
- Temperature de-rating: 2%/^{0}C from 50^{0}C to 60^{0}C

Safety certification:

- UL1012-CSA C22.2-107.1 listed
- CSA C22.2 107.1 certified
- ISO9001 Quality control

OPTIONS:

Interface:

- Individual alarm form “C” contacts
- Modbus RTU via RS232/485 or TCP/IP, DNP3, IEC 61850, Canbus
- Web page via Local or dynamic IP address
- 4-20mA& 0-5V current and voltage R/W loops
- 8 customer defined digital inputs

Alarms:

- Buzzer with reset
- Hardware high volt shutdown
- 2nd low volts
- AC High & Low Voltage
- Battery high & low temperature alarm and shutdown
- Charger or battery high temperature de-rating and shutdown

Metering & Monitoring

- Input voltage, current and frequency
- Non intrusive battery current metering
- Integrated digital AH meter
- Battery ammeter and voltmeter
- Real time charge & discharge battery Ammeter
- System Clock w/ date and time stamp on event log
- Watchdog circuit
- Individual cell monitoring
- Room temperature reading and alarm
- Lifeline Monitoring System™

Hot Swap module

Maintenance

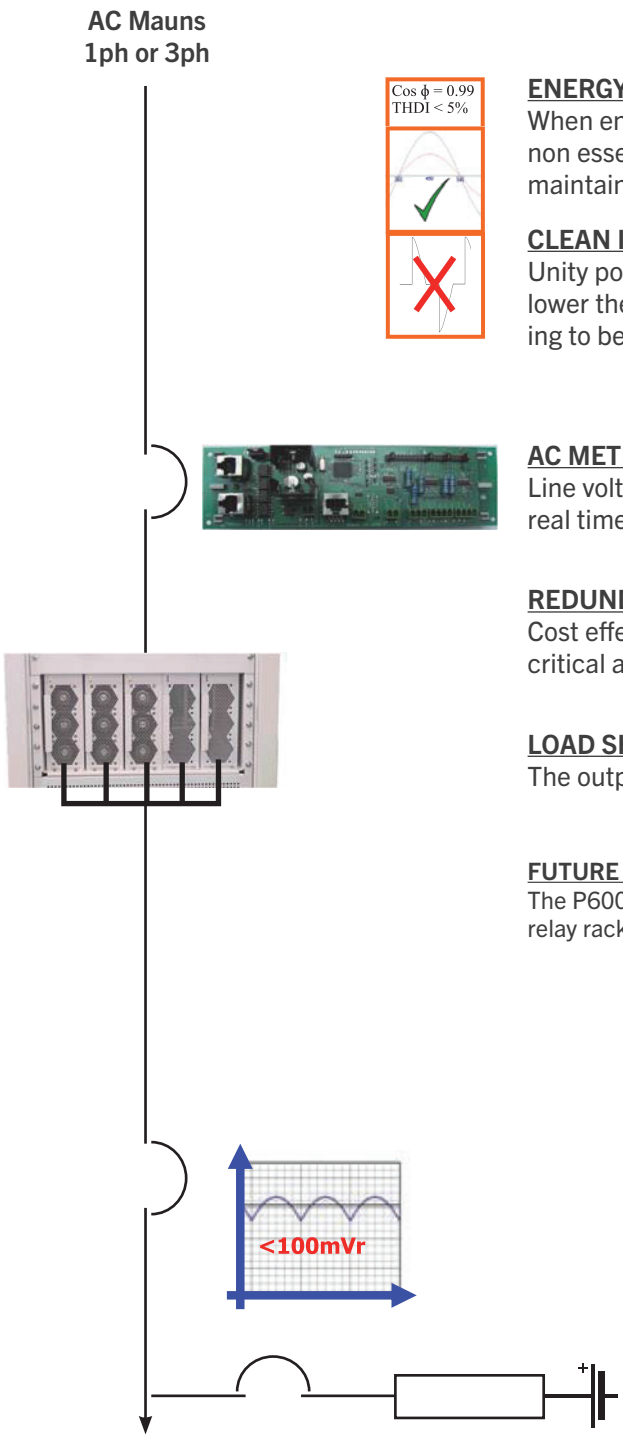
- Temperature compensation c/w temperature probe
- Battery imbalance alarm
- Integrated online Battery Test
- Integrated online Battery continuity test
- Battery circuit breaker
- Low volt load disconnect
- Remote equalize
- Remote shutdown
- Battery liquid level monitor (individual cell)

Input and Output

- THD and P.F. correction filter
- High capacity interrupting breakers
- Connection free forced load sharing
- Remote battery voltage sensing
- DC output circuit breaker
- Dropping diode circuit
- Battery current limit
- Integrated Distribution panel

Mechanical and hardware

- Special paint, NEMA & IP protection
- Seismic design
- Fungus and tropical proofing
- Custom enclosures to fit batteries
- Halogen free and special wiring
- Bottom or side cable entry
- Custom enclosures: Stainless steel, aluminum, fibreglass, outdoor, harsh, environments, insulated, air conditioned...



ENERGY SAVING
When enabled, the selective sleep mode helps saving energy: In float mode, non essential modules will selec-tively turn off so overall efficiency will be maintained

CLEAN INPUT
Unity power factor correction design with very low current THD: It helps to lower the energy cost while per-mitting AC upstream circuit breakers and wir-ing to be sized smaller than for traditional rectifier systems

AC METERING *
Line voltage, current and frequency are monitored, displayed and reported on real time basis through the communication option

REDUNDANCY
Cost effective redundancy (N+1, N+2, N+N) is possible to satisfy your mission critical applications

LOAD SHARING
The output of each module is automatically adjusted and load is equally shared

FUTURE EXPANSION
The P600 modular design enables you to parallel up to 30 modules in a 2m (86in) 19in relay rack to deliver a maximum of 1200A at 125VDC

LOW RIPPLE

Inherent low voltage and current AC ripple to extend battery life

TEMPERATURE COMPENSATION*

Adjusts charging voltage according to the battery temperature.

BATTERY CONTINUITY TEST * (*REQUIRED BY NERC*)

Automated battery continuity test to insure the battery can deliver the required high current of your application.

BATTERY MONITORING*

Battery voltage, charge and discharge current, battery imbalance, battery/room temperature, real time state of charge displayed or reported through a communication port.

240A-125Vdc EZ-Swap system
480V-3ph input

Communication*

COMMUNICATION
MODBUS, Serial or TCP-IP. DNP3
IEC61850, WEB: Static or dynamic address

Alarm Relays*

SCADA

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Document Number 0018BR0326 /March 2026

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