

# P600 series chargers

250Vdc-125Vdc-48Vdc-24Vdc

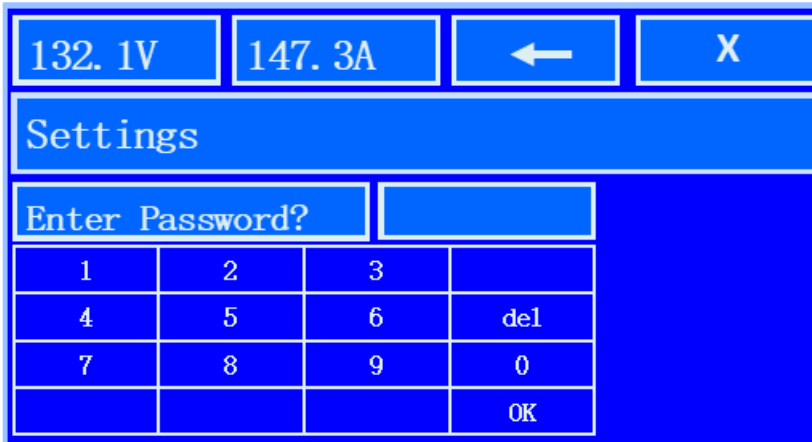
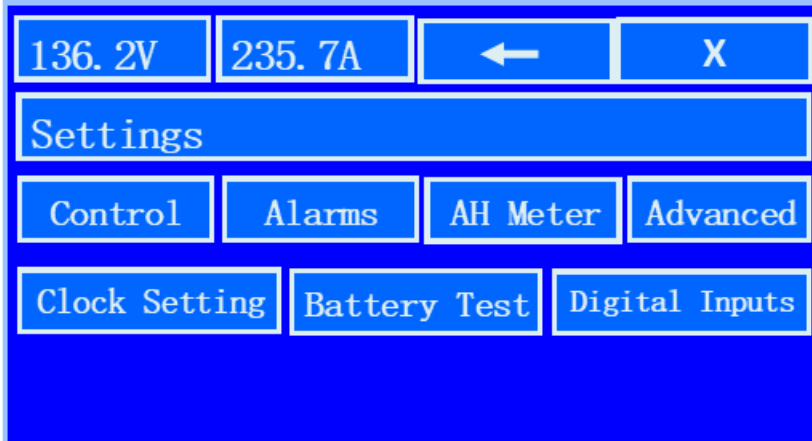
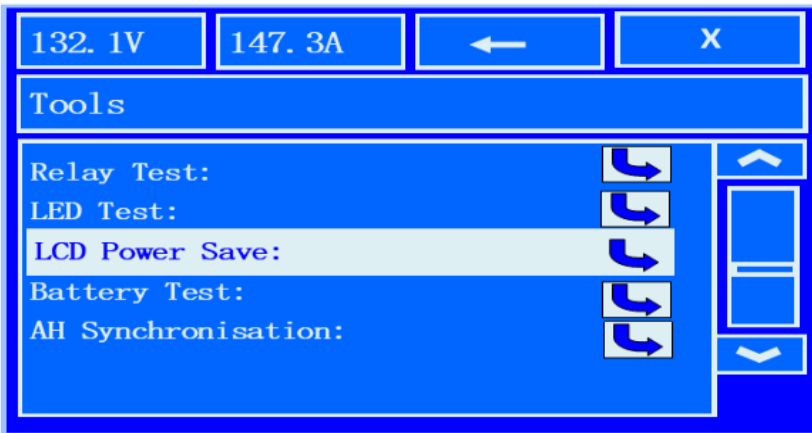
19" Rack cabinet & EZ Swap

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

Primax **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 PRIMAX P600 SWITCHMODE DESIGN?

- **Maintenance flexibility:** Specialized technicians are no longer required. The modular design of the Primax 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 Primax P600.
- **Hot swap and easy swap:** Servicing and repairing legacy chargers requires specialized knowledge. Both Primax 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 X 5.5 kW 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 Primax P600 optimizes battery life.
- **Clean power:** Thanks to the Primax P600 unity power factor & very low THDi, electrical pollution reflected on the grid is limited. The Primax P600's high efficiency also helps to save energy.
- **Easy to upgrade and refurbish:** The Primax 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 Primax P600 is compatible with the legacy batteries such as Lead acid and Ni-Cd as well as the Li-Ion new designs. Thanks for it 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 Primax P600 can communicate directly with our Li-Ion battery systems. It is your best option when considering Li-Ion for stationary applications.



## 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™

### 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...



5.5 kW-125Vdc  
Hot Swap module

AC MAINS  
1ph or 3ph

$\text{Cos } \phi = 0.99$   
THDI < 5%



**ENERGY SAVING**

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



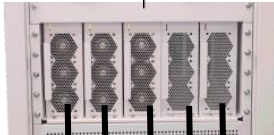
**CLEAN INPUT**

Unity power factor correction design with very low current THD: It helps to lower the energy cost while permitting AC upstream circuit breakers and wiring 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**

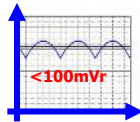
Cost effective redundancy (N+1, N+2, N+N) is possible to satisfy your mission critical applications

**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.

CRITICAL DC LOAD



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



Communication\*

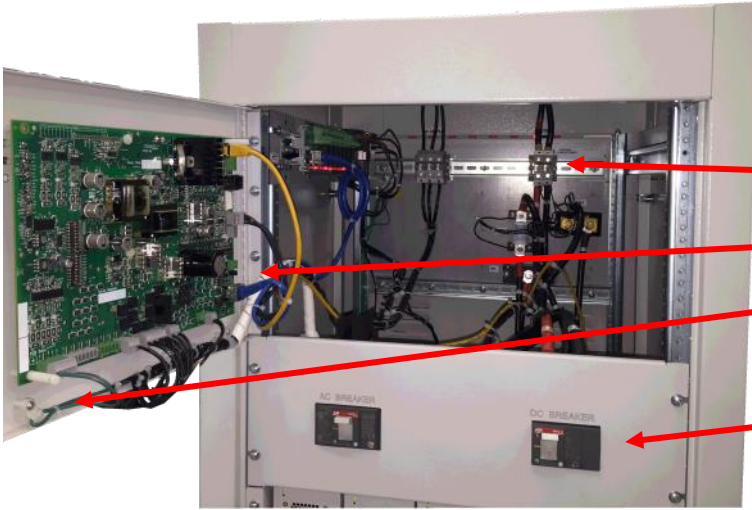
**COMMUNICATION**

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



Alarm relays\*

**SCADA**



**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 5.5kW/module at 125Vdc
- Frequency: 50-60Hz
- THD < 5%
- Power factor: 0.99
- Efficiency/module: 92%
- Static load regulation:  $\pm 0.5\%$  at +10/-12% input voltage,  $\pm 5\%$  frequency and 0-100% load
- Dynamic load regulation:  $\leq 1\%$  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):
 

	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.  
100% power@120V input is optional

#### 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

#### Environmental:

- Audible noise: < 65dBa at 1m (3.3ft)
- Ventilation: forced cooling
- Heat dissipation: 1500Btu per module at full load
- Operating temperature: -20°C to +50°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%/°C from 50°C to 60°C

#### Safety certification:

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

### **Primax Technologies Inc.**

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Specs may change without prior notice