



Features:

Switched mode power supply

Wide output range 0...72Vdc

Analog control by an external 0...5Vdc

Power failure alarm output

The Powerfinn PAP800UL is a high power, lightweight, advanced power supply using modern switching technology. The unit can be used as a power supply or constant voltage battery charger. The output voltage and output current can be adjusted from 0 to maximum using the trimmer on the front panel.

Specifications

Input voltage		55...140Vac (55...100Vac reduced power)
Input current		9A
Power factor		>0,98 typical
Efficiency (120Vac, 10%...100% load)		84% typical
Inrush current		<30A, limited by an NTC resistor
Input fuse (inside the unit)		10A
Line regulation		±0.1%
Load regulation		±0.5%
Output setting accuracy		±0.1%
Output ripple (f>50Hz)		<50 mVrms, In S and T versions the resolution is defined by an 8-bit A/D converter of a microcontroller. Measured using nominal output voltage.
Hold-up time		> 2 ms
Status LED indicator		Orange: power OK
Isolation	input-chassis	1500 Vac
	input-output	3750 Vac
	output-chassis	500 Vac
Standards	safety	UL1564 – UL recognized
	EMC	EN 55022A
Protection class	mechanical	IP20 metal enclosure
	electrical	Class 1
Dimensions	w x h x d	220 x 112 x 73 mm
Weight		1,55 kg
Mounting		DIN-rail, wall, bench
Cooling		Temperature controlled fan
Operating temp range		-25°C...+40°C

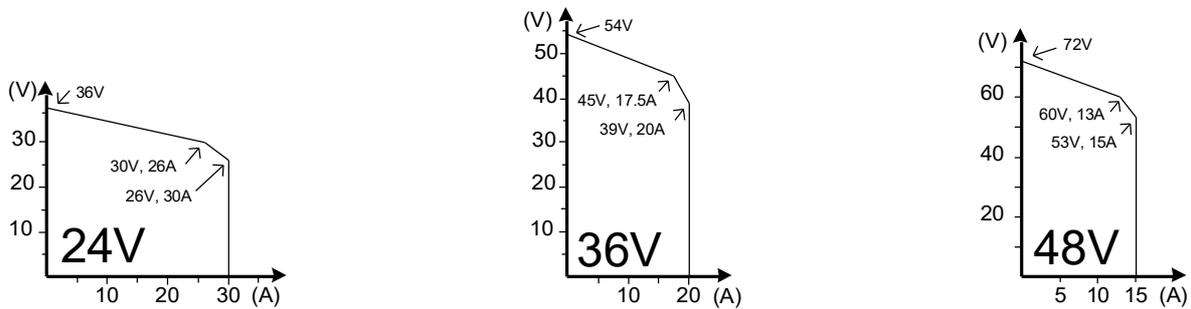
Power Supply Models

Trimmer adjustable power supplies							
Model	Input voltage range **)	Nominal output voltage	Voltage Setting range	Nominal output current	Current setting range	Max power **)	Installation/dimensions (width x height x depth)
PAP800/UL24	55...140Vac	24Vdc	0-36Vdc	30A	0-30A	800W	Wall /bench 220x112x73
PAP800UL/36	55...140Vac	36Vdc	0-54Vdc	20A	0-20A	800W	Wall /bench 220x112x73
PAP800UL/48	55...140Vac	48Vdc	0-72Vdc	15A	0-15A	800W	Wall /bench 220x112x73

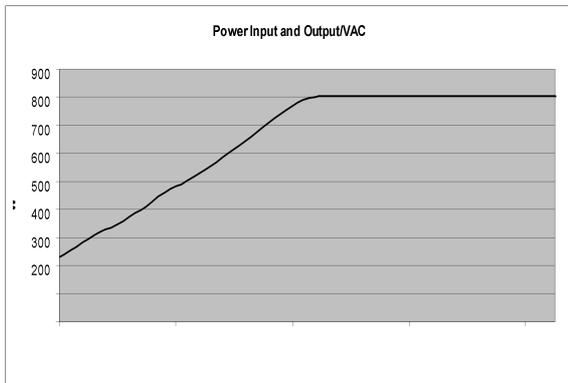
** Input voltage 55...100Vac reduced power

*** Reduce power max 600W & input 5A when in use having DC input

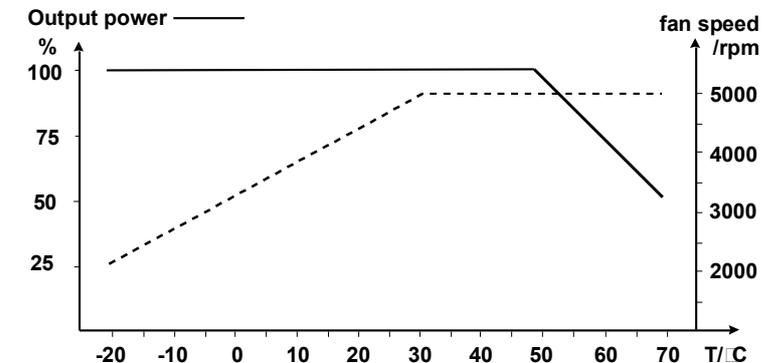
Characteristics



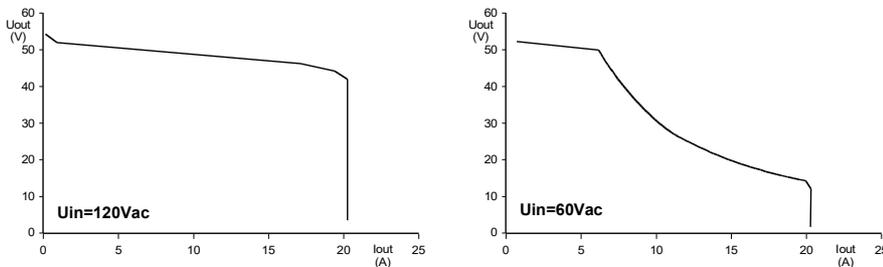
Nominal output current / voltage characteristics PAP 800



Maximum output power / input voltage de-rating characteristic (see power limitation and DC-input).



Ambient temperature versus output power and fan speed.

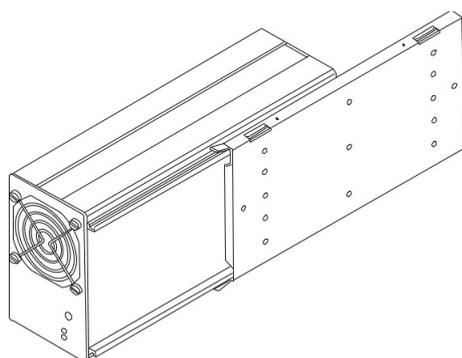


The output current-voltage characteristic at different input voltages.36VDC output voltage version.

Installation

1. The location must be dry, dust-free and indoor. The acceptable full power temperature range is 0°C...+50°C. Higher ambient temperature will limit the power (see curve). The power supply is not waterproof. Keep it dry and away from areas with high humidity in order to avoid the risk for electrical shock and damages to the charger.
2. The power supply can be installed horizontally or vertically. In case the power supply is mounted vertically with the cable plate downwards, the floor and everything right below the power supply must be fire-resistant. Vertical mounting is prohibited in case this condition cannot be met.
3. Leave at least 10 cm free space at both ends of the power supply to ensure sufficient ventilation.

When used as a charger, the charging process generates explosive hydrogen gas. Keep the area well ventilated Never use an open flame or equipment that produce sparks close to the power supply and battery.



Wall mounting

Screw the assembly board to the wall using the mounting holes in the back of the board. Next, place the power supply to the assembly board and fasten it by using the small screws on the sides of the board.

Charging operation

1. Ensure that the power supply is switched off and that the environment meets the conditions as described in the previous section.
2. Connect the output cables to the load / battery terminals: + cable to the + terminal and – cable to the – terminal

Note: Do not cut the output cables. In case the cables are shortened, the output voltage is overcompensated as much as the loss of voltage drops in the cable. The overcompensation may cause voltage variations depending on the current consumption.

3. Turn the power on by turning the switch to position 1.
4. During normal power supply operation / charging process, the STATUS LED will light continuous orange.
5. To avoid sparking, turn off the power supply before disconnecting the cables.

DC Input connection

The power supply input cable is connected as follows:

- L negative or positive DC supply input
- N positive or negative DC supply input
- PE protective earth

The socket outlet shall be installed near the equipment and shall be easily accessible. Maximum 10A maximum rating of protective device required in building installation. When having unearthed DC mains 2 fuses or 2 pole circuit breaker required in building installation.

Output voltage and current limit adjustment

The output voltage and output current limit of the power supply can be adjusted as using the multi-turn potentiometers accessible from the front panel.

Both voltage and current can be adjusted from zero to the maximum value. Maximum 800W output power is available within the adjustment range.

The power supply includes 16 pre-programmed output voltages that are set by the code switch. See the setting table for this unit. Any of these 16 different voltage settings can be taken in use and additionally be adjusted within $\pm 5\%$ using the trimmer on the front panel. See the instructions for choosing the programmed voltage and the fine-tune adjustment.

LED

An orange LED indicates a healthy power supply output voltage.

Overcurrent protection

The output of the power supply is protected against overcurrents and short circuits by an automatic, self-resetting electronic current limiter.

Series/parallel connection

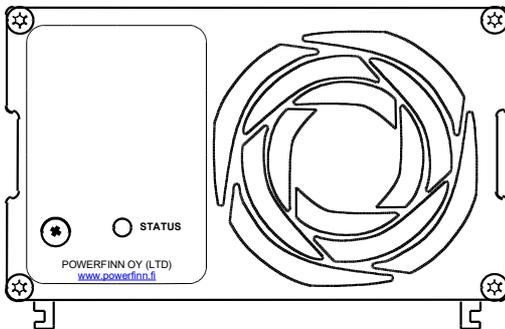
Parallel operation: No restrictions, passive load sharing

Series operation: Series operation: Up to 500V total voltage. For more information about use with an AI or S option, ask the manufacturer.

Warning

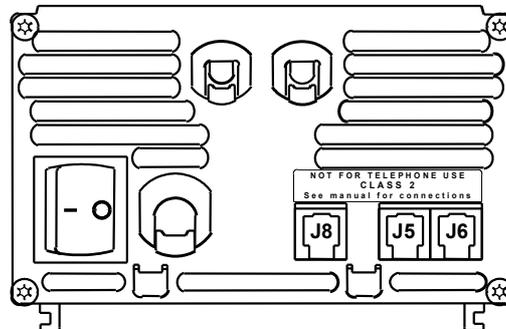
Dangerous voltages, capable of causing death are present in the power supply. Do not remove the cover. There are no operator serviceable parts inside the unit. Refer servicing to qualified service personnel only.

Modular connectors



Front panel

The programming switch is situated left from the status LED.



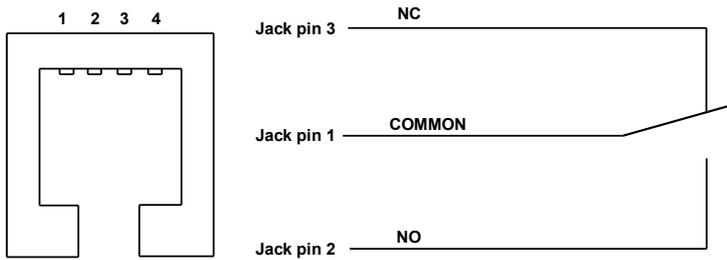
Rear panel

- J8 Alternatively power failure alarm relay
- J5 Temperature compensation (Temp.comp models); Voltage drop compensation option
- J6 Optional external LED

Alarm relay (Option R)

On models with an alarm relay, the alarm relay output indicates whether the output voltage is healthy or not. The alarm signal is activated in case of an AC failure or charger failure. Both normally closed signals and normally open contacts are available.

Pin configuration, modular connector J8 with alarm relay option



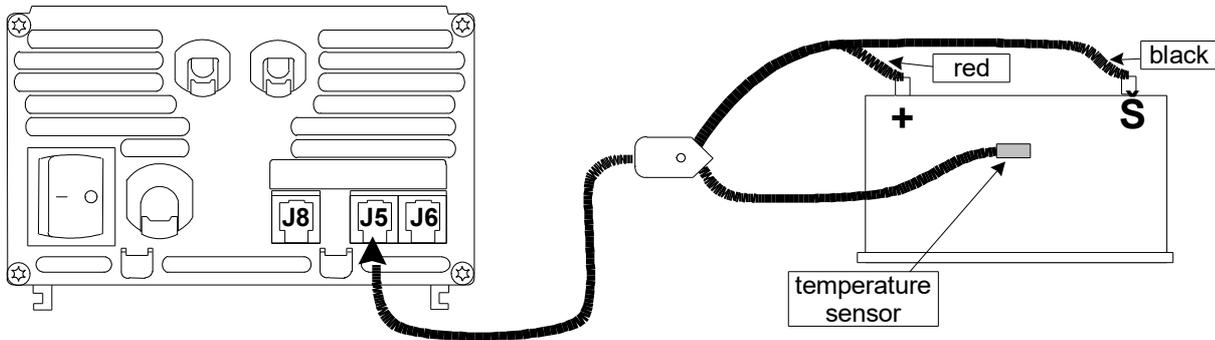
Cable
Black = common
Red = NO
Green = NC

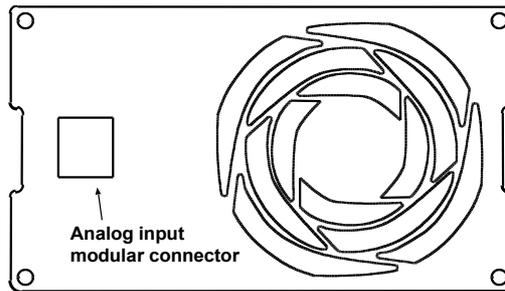
Relay
Isolation: Technical data:
Output to case: 500V 1A@24Vdc
Output to gnd: 120V 0,5A@120Vac

Common is connected to NC when the power is switched off.
Common is connected to NO when the power is switched on.

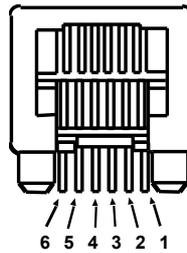
Temperature sense (Option T & S)

The sense cable enables the charger to adjust the output voltage in accordance with the battery voltage and temperature fluctuations. The temperature sense cable is connected to connector J5. The sense cable is connected to the battery as shown below. The temperature sensor is either glued 10 cm under the battery's top edge (see figure below), or to the cable tag connected to the battery minus.





Pin configuration



1. Ground
2. Current control input
3. Voltage control input
4. Measured current value
5. Measured voltage value
6. +5V (max 20mA) output

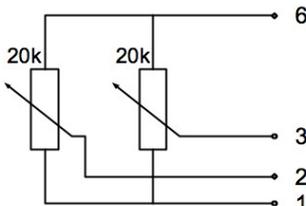
Pin configuration of the modular connector J1 (Option AI)

Controlling the analog card (Option AI)

All control voltages must be between 0 and +5V, Higher voltages are not allowed. The control logic is positive, so that a +5V control voltage gives a maximum value from the power supply, while 0V means minimum output. As soon the control connector is unplugged from the modular connector, the power supply is reset to the minimum output values.

The measured values can be read from the measurement signals. The measured values are scaled equal to the target values. If the power supply is set to the voltage reference, the measured value must be equal to the target. The same counts for the current control and its measured value. Measured signals (both together) can be loaded with max 20mA; otherwise proper operation cannot be guaranteed.

The modular connector is isolated from the input, output and enclosure of the power supply. This enables the possibility to parallel or series connect several power supplies maintaining equal voltages. The number of connected devices is not limited. The 500V insulation voltage may, however, not be exceeded. This manual cannot be applied in case the connector of the analog card differs from a modular connector (9-pin D-connector). In that case it is an incompatible analog controlled power supply.



Connecting example using the internal +5Vdc supply and external potentiometers. The +5V can be used as a supply for external circuits. The circuit given to the left, lets the power supply operate as a potentiometer controlled device. It is important to keep in mind that the +5V output may not be loaded more than 20mA, otherwise proper operation cannot be guaranteed.