

# 600-800

## WATTS

### AC/DC FRONT END POWER MODULE

#### SINGLE OUTPUT

**Wide range input (88-265VAC)**

**High efficiency 90% (typ)**

**Conducted EMC: EN60950, EN55022-B**

**CSA950, UL1950**

**N + 1 redundant parallel operation**

**High reliability**

**1 year warranty**

#### GENERAL

With the PD Series, LAMBDA is presenting a revolutionary new concept of AC/DC converters. Through its extreme compactness, an efficiency of 90% and the mechanical construction, these modules offer the maximum in design flexibility.

All functions, including filtering, power factor correction, AC/DC conversion as well as monitoring and signal-generation are integrated into the modules. The size and form of these power modules makes it very simple to use as a basic component for a 3U, 6U or an individually built power supply. Whatever size, form, physical interface and specification your system requires, the PD's will fit.

Your custom power supply is achieved by just putting four components together: • PCB • PD-module • Heatsink • Output-connector.

The PD Series meets all relevant EMC directives – and worldwide Telecom standards.

#### INPUT

Input voltage range:	88-265VAC (100-240VAC nom) 187-265VAC (200-240VAC nom)
Input current (typical):	3.0A at 230VAC input (4.2A PD800A) 5.5A at 115VAC input (5.5A PD800A)
Inrush current:	25A at 265VAC
Power factor:	>0.95

#### OUTPUT

Output voltage nom.:	50.5VDC
Output voltage range:	24-58.5VDC
Output voltage accuracy:	±1%
Maximum output current:	PD600-230-48: 8A at 88-265VAC 12A at 187-265VAC PD800A-230-48: 8A at 88-265VAC 16A at 187-265VAC
Maximum output power:	404W at 88-265V 606W at 187-265V 808W at 187-265VAC on PD800A
Over voltage protection:	60-62VDC (inverter shutdown method). Manual reset.
Over current protection:	Constant current characteristic 630W at PD600 800W at PD800A
Over temperature protection OTP:	Yes
Line regulation:	0.5% (at 88...265VAC/ 187...265VAC)
Load regulation:	0.5% (0...100% static load change)
Output ripple:	400mV typ.
Leakage current:	2mA typ.
Hold up time:	5ms min. Inreasable with external E-Caps
Efficiency:	Min. 90% (at 230VAC input)
Isolation voltage: (for 1 min.)	Input to output: 4.2kVDC Input to baseplate: 2.1kVDC Output to baseplate: 500VDC

## OUTLINE SPECIFICATION (continued)

### MONITORING AND ALARM

Remote sensing (+S/-S):	Compensation of voltage drop due to wire resistance
Output voltage (TRM):	Through external voltage source or adding external resistor
Parallel operation (PC):	Output current can be equally shared up to 5 units of the same model
Remote on/off (CNT):	Output of PSU can be turned on and off without disconnecting the input
Auxiliary supply (AUX):	11 to 13VDC, 30mA max. Power supply for external signals
Inverter operation:	Good operation condition of power module
Signal (IOG):	Can be monitored (open collector)
Over current protection adjustment (IMAX):	102% - 120% The setting can be changed through external voltage source or resistor

Please refer to Instruction Manual for further details.

### ENVIRONMENTAL

Operating temperature:	-20 to +85°C baseplate temperature
Ambient temperature:	PD600: -20 to +45°C (convection cooling with heatsink) PD800A: -20 to +50°C (forced air cooling, 1.5m/s air flow)
Storage temperature:	-40°C to +85°C

### ENVIRONMENTAL (continued)

Vibration:	amplitude 0.825mm, constant (maximum 5G) X,Y,Z 1 hour each (non-operating)
Shock:	>20G (in package)
Weight:	750g typ.

### SAFETY APPROVALS\*

EN60950, UL1950, UL1459, CSA22.2 No.950-95, CSA22.2 No.225 telecommunication equipment.

\*Contact Technical Sales for current status of approvals.

### EMC

Conducted emission:	EN55022 B (SC01)
Conducted and radiated emission:	EN55022 A, EN55022 B (SC01 suffix)
Susceptibility:	EN61000-4-2 & 3, 4, 5, 6 (Level 3) GSM 11.22
Power factor correction:	EN61000-3-2
Protection against high energy impulses from the mains-side:	VDE 0160 (W2)

### WARRANTY

Warranty: year including parts and labour.

All specifications guaranteed worst case unless otherwise noted.

## ELECTRICAL SPECIFICATION

Model No.	Input (*1)	Max. Output power 187-265VAC (*1)			AC Inlet	AC Switch	Input pins	Full cover	Top plate	Cooling
		50.5VDC A	606W	Amps						
PD600-230-48	88-265VAC	50.5VDC A	606W	12.0	Yes	Yes	No	No	Yes	Convection cooling
PD600-230-48/P01	88-265VAC	50.5VDC A	606W	12.0	No	No	Yes	No	Yes	Convection cooling
PD800A-230-48/C01	88-265VAC	50.5VDC A	808W	16.0	Yes	Yes	No	Yes	No	Forced air cooling (*1)
PS800A-230-48/SC01	88-265VAC	50.5VDC A	808W	16.0	Yes	No	No	Yes	No	Forced air cooling (*1)
PD800A-230-48	88-265VAC	50.5VDC A	808W	16.0	Yes	Yes	No	No	Yes	Forced air cooling (*1)
PD800A-230-48/P01	88-265VAC	50.5VDC A	808W	16.0	No	No	Yes	No	Yes	Forced air cooling (*2)

(\*1) Output power will vary depending upon input voltage, 404/505W at input voltage 88/100-225VAC.

(\*2) Minimum required airflow 1.5m/s for operation of PD800A module. For details of thermal design, refer to instruction manual.

### DESCRIPTION OF COVER TYPE

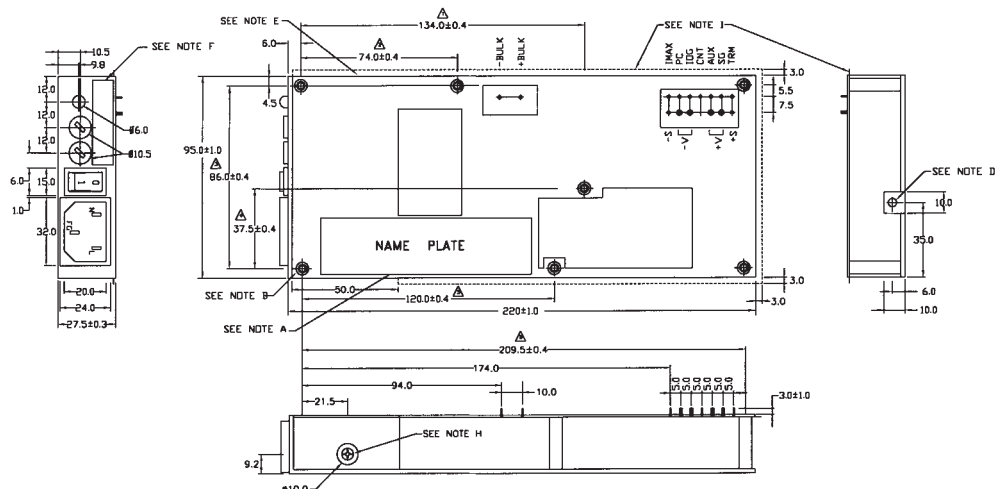
PD600-230-48/P01 - PD800A-230-48/P01	Single-sided aluminium-plate (external protection against contact is necessary).
PD600 - PD800A-230-48/C01	5-sided aluminium cover.
PD600 - PD800A-230-48/SC01 - PD600 - PD800A-230-48	

### AVAILABLE OPTIONS

Option	Explanation	Model No.	Note
P01	Version with input pins for soldering on PCB	Suffix/P	Optional model
S	Version without the mains switch	Suffix/S	
T	Version with mounting studs without threads	Suffix/T	

# PHYSICAL SPECIFICATION (continued)

## PD600/PD800AP01



NOTE A : MODEL NAME, INPUT VOLTAGE RANGE, NOMINAL OUTPUT RANGE, NOMINAL OUTPUT VOLTAGE, MAXIMUM OUTPUT CURRENT, COUNTRY OF MANUFACTURE AND SAFETY MARKS ARE SHOWN HERE IN ACCORDANCE.

NOTE B : 7X $\phi$ 3.0 TAPPED HOLES FOR CUSTOMER CHASSIS MOUNTING SCREWS MUST NOT PROTRUDE INTO POWER MODULE BY MORE THAN 10mm (FAR SIDE FOR HEATSINK).

NOTE C : INPUT AND OUTPUT TERMINALS:  
 INPUT : IEC 320 C14 PLUG  
 PRIMARY OUTPUT : 2 -  $\phi$ 0.8  
 SECONDARY OUTPUT : 4 - 1.4X1  
 9 -  $\phi$ 0.8  
 RECOMMENDED CUSTOMER PCB HOLES :  
 FOR 11X $\phi$ 0.8 PINS : USE 1.2mm HOLE SIZE  
 FOR 1.4X1 POWER PINS : USE 2mm HOLE SIZE  
 REFER TO INSTRUCTION MANUAL FOR DETAILS.

NOTE D : M4.0 TAPPED HOLES FOR PROTECTIVE EARTH CONNECTION. SCREW MUST NOT PROTRUDE INTO POWER MODULE BY MORE THAN 6mm.

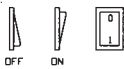
NOTE E : DATE CODE AND VERSION IS SHOWN ON THIS SIDE.

NOTE F : FUSE MARKING SEAL.

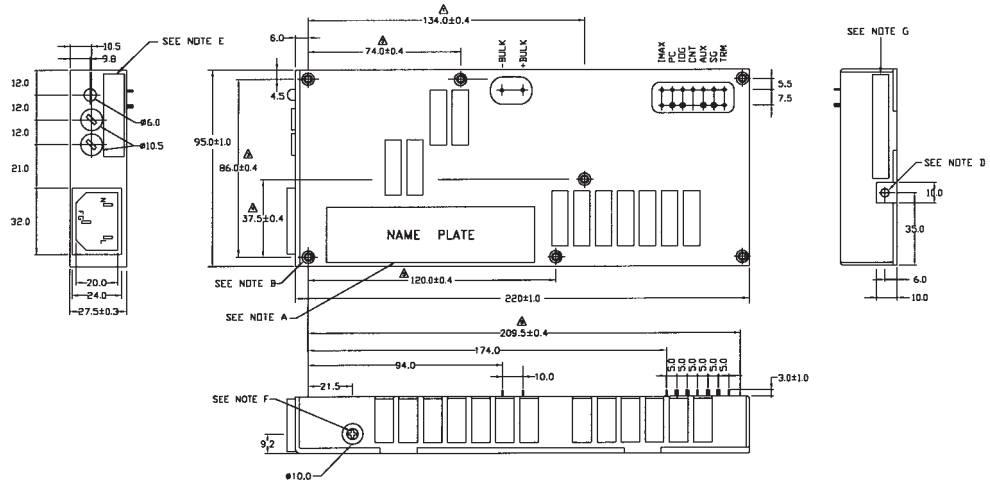
NOTE G : AC SWITCH ON/OFF INDICATION.

NOTE H : REMOVE THIS M3 COUNTERSUNK SCREW TO CHECK POWER MODULE WITHSTAND VOLTAGE.

NOTE I : NOMEX INSULATOR FOR PRIMARY TO GROUND CREEPAGE AND CLEARANCE.



## PD600/PD800A-230-48/SC01 and PD800A-230-48/C01/SC01



NOTE A : MODEL NAME, INPUT VOLTAGE RANGE, NOMINAL OUTPUT RANGE, NOMINAL OUTPUT VOLTAGE, MAXIMUM OUTPUT CURRENT, COUNTRY OF MANUFACTURE AND SAFETY MARKS ARE SHOWN HERE IN ACCORDANCE.

NOTE B : 7X $\phi$ 3.0 TAPPED HOLES FOR CUSTOMER CHASSIS MOUNTING SCREWS MUST NOT PROTRUDE INTO POWER MODULE BY MORE THAN 10mm (FAR SIDE FOR HEATSINK).

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NOTE D : M4.0 TAPPED HOLES FOR PROTECTIVE EARTH CONNECTION. SCREW MUST NOT PROTRUDE INTO POWER MODULE BY MORE THAN 6mm.

NOTE E : FUSE MARKING SEAL.

NOTE F : REMOVE THIS M3 COUNTERSUNK SCREW TO CHECK POWER MODULE WITHSTAND VOLTAGE.

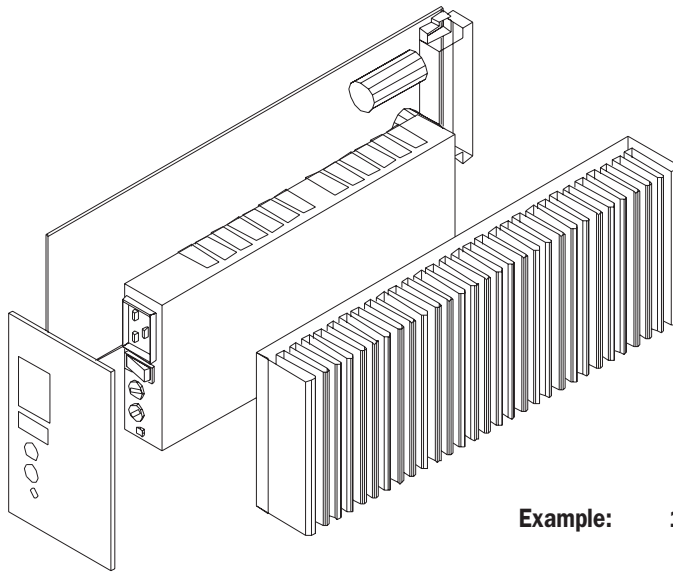
NOTE G : SERIAL NUMBER LABEL.

## PHYSICAL SPECIFICATION (continued)

### FRONT PANEL SIGNALS

Operational status indicator		
Medium	Colour	Status
LED multicolour	Green	Constant voltage mode
	Red	Constant current mode
	Orange	Constant power operation
	Light Green	Remote off

### PCB MOUNTING & HEATSINK



Example: 19" 3U, 300mm depth

### ACCESSORIES FOR PD600/PD800A

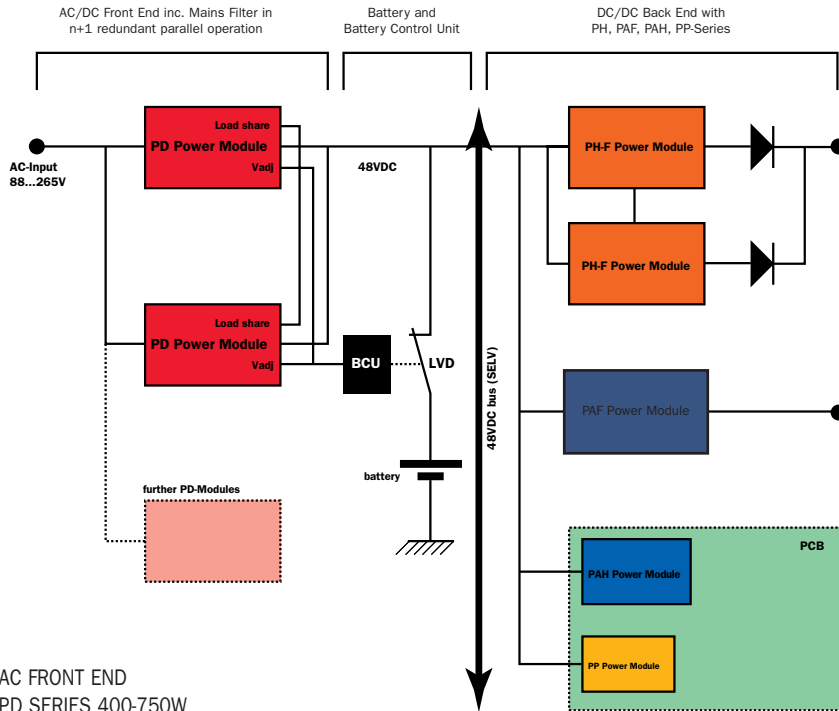
Item	Reference
Thermal pad	F-IM-0036
PCB	F-IM-0038
Heatsink	Contact Technical Sales

### AVAILABLE TECHNICAL INFORMATION

Electrical and physical specifications  
Thermal management

Details also available on Lambda's Engineering CD - please contact the sales office to request a copy.

# APPLICATION EXAMPLES



## AC FRONT END PD SERIES 400-750W

### Features:

404 Watt at	Input: 88...265VAC
606/750 Watt at	Input: 187...265VAC
PFC:	EN61000-3-2
EMI:	EN55022 B
EMC	EN61000-4-2,3,4,5
	VDE 0160 W2
High efficiency	90%

N+1 Parallel operation

For chassis mounting design PD 800A series can also be used.

## DC Back End

**PH SERIES 50-600WATT, 2...48V O/P**  
**N+1 Redundant parallel operation**  
**High efficiency**  
**High density**

**PAF SERIES 30-100WATT, 2, 3.3, 5V O/P**  
**90% efficiency**  
**Soft start**  
**No heatsink**  
**8mm low profile**

**PAH SERIES 50-200WATT, 2.5...28V O/P**  
**Industry standard pinning, (half brick)**  
**Base plate temp. -40...+100°C**  
**High efficiency & high power density**

**PP SERIES 1.5-25WATT, 5...15V O/P**  
**Low profile 8mm**  
**Wide Input range**  
**Single & dual output**

## POWER SUPPLY DESIGN WITH PD600/PD800A POWER MODULES

### 580W Multi-Output Power Supply for Television-Broadcast-Systems

- Features:
- AC-DC front end 90-265VAC (PD800A)
  - 4 isolated outputs, 3 x 5V (PH150F), 1 x 12V (PH50S)
  - AC OK, DC OK, FAN OK signalisation
  - EN55022B
  - EN61000-3-2
  - EN61000-4-2,3,4,5
  - N+1 redundant parallel operation on 5V, 'Hot Swap' capability

- Application:
- Digital recorder



### 550W Multi-Output AC/DC Power Supply

- Features:
- 88-265VAC
  - 10 isolated outputs: 2 x 5V (PH, PP), 2 x 5.5V (PP), 3 x 12V (PH, PP), 1 x 48V (PD800A), 2 x 24V (PH)
  - EN55022B
  - EN61000-3-2
  - EN61000-4-2,3,4,5

- Application:
- Basestation for GSM-Network



### 600/750W Rectifier Power Supply for Telecom-Applications

- Features:
- 88-265VAC, nom. 48V output
  - EN55022B
  - EN61000-3-2
  - EN61000-4-2,3,4,5,6
  - N+1 redundant parallel operation
  - 'Hot Swap' capability

- Applications:
- BTS, BSC for GSM-Network
  - PABX
  - ATM-Transmission equipment
  - Router
  - Directional radio systems

Available as standard version or integrated in a modular system (3 HE rack) with battery control unit.

