

## Simple function, 50 to 600W DC-DC converters



- ◆ High Density
- ◆ Wide Range Input
- ◆ Output adjustment Capability
- ◆ Remote On/Off
- ◆ Fixed Switching Frequency
- ◆ International Safety Approvals

### Key Market Segments & Applications

Telecom  
 Custom Power Supplies  
 Point of Load

### PH Features and Benefits

#### Feature

- ◆ High density
- ◆ Low component count
- ◆ Fixed operating frequency
- ◆ Variety of input voltages

#### Benefit

- ◆ Smaller package size
- ◆ High reliability Demonstrated 5 million hours MTBF
- ◆ Easier system filtering
- ◆ Systems can operate from different input voltages

### Specifications

ITEMS		3.3V	5V	12V	15V	24V	28V	48V
Input range	VDC	24V nom: 18-36, 48V nom: 36-76V, 110V nom: 82-185V, 280V nom: 200-400V						
Output Voltage Adj. Range	VDC	2.97~3.63	4.5~5.5	10.8~13.2	13.5~16.5	21.6~26.4	25.2~30.8	43.2~52.8
Line Regulation		0.4% or 20mV (whichever is greater) over entire input range with constant load						
Load Regulation		0.8% or 40mV (whichever is greater) from no load to full load with constant input line						
Ripple and Noise	pk-pk	100mV		150mV		240mV	280mV	480mV
Series Operation	-	Possible - Refer to installation manual						
Over Voltage Protection	-	150 - 180%		125 - 145%				
Overload Protection	-	Approximately 105 - 140%, automatic recovery						
Remote On/Off	-	Low = ON, Open = OFF						
Remote Sensing	-	PH100S, PH150S, PH300S, PH600S models						
Parallel operation	-	PH300S & PH600S only: Requires external circuitry						
Inverter Good signal	-	PH300S & PH600S only: Signal available for status of inverter						
Thermal Protection	-	Internal sensing, self resetting						
Cooling	-	Conduction or forced air. See application notes for cooling and heatsink selection						
Operating Temperature Range	-	Baseplate temperature -20°C to +85°C (100°C on PH300 & PH600). -40°C start up possible with 30 minute warm up period						
Storage Temperature	-	-40°C to +85°C (+100°C on PH300 & PH600)						
Temperature Coefficient	-	0.02%/°C						
Isolation	-	Input to output: 3000VAC, Input to Baseplate: 2500VAC(1)						
Isolation Resistance	-	Output to Baseplate -100MΩ at 500VDC and 70%RH						
Safety Agency Approval	-	UL1950, CSA234, EN60950 and CE Mark.						
Warranty	-	Two years						

Note: See Installation Manual for full details, test methods of parameters and application notes

(1) PH300S48 models: Input to output 1.5kVAC, input to baseplate 1.5kVAC

## Model Selector

Nominal Output Voltage (V)	Output Current (A)	Output Power (W)	24V input	48V input	110V input	280V input
3.3	10.0	33.0	-	PH50S48-3.3	-	PH50S280-3.3
3.3	15.0	49.5	-	PH75S48-3.3	-	PH75S280-3.3
3.3	20.0	66.0	-	PH100S48-3.3	-	PH100S280-3.3
3.3	30.0	99.0	-	PH150S48-3.3	-	PH150S280-3.3
3.3	50.0	165.0	-	PH300S48-3	-	PH300S280-3
3.3	100.0	330.0	-	-	-	PH600S280-3
5.0	10.0	50.0	PH50S24-5	PH50S48-5	PH50S110-5	PH50S280-5
5.0	15.0	75.0	-	PH75S48-5	PH75S110-5	PH75S280-5
5.0	20.0	100.0	-	PH100S48-5	-	PH100S280-5
5.0	30.0	150.0	-	PH150S48-5	PH150S110-5	PH150S280-5
5.0	50.0	250.0	-	PH300S48-5	-	PH300S280-5
5.0	100.0	500.0	-	-	-	PH600S280-5
12.0	4.2	50.0	PH50S24-12	PH50S48-12	PH50S110-12	PH50S280-12
12.0	6.3	75.0	-	PH75S48-12	PH75S110-12	PH75S280-12
12.0	8.4	100.0	-	PH100S48-12	-	PH100S280-12
12.0	12.5	150.0	-	PH150S48-12	PH150S110-12	PH150S280-12
12.0	25.0	300.0	-	PH300S48-12	-	PH300S280-12
12.0	50.0	600.0	-	-	-	PH600S280-12
15.0	3.4	50.0	PH50S24-15	PH50S48-15	PH50S110-15	PH50S280-15
15.0	5.0	75.0	-	PH75S48-15	PH75S110-15	PH75S280-15
15.0	6.7	100.0	-	PH100S48-15	-	PH100S280-15
15.0	10.0	150.0	-	PH150S48-15	PH150S110-15	PH150S280-15
15.0	20.0	300.0	-	PH300S48-15	-	PH300S280-15
15.0	40.0	600.0	-	-	-	PH600S280-15
24.0	2.1	50.0	PH50S24-24	PH50S48-24	PH50S110-24	PH50S280-24
24.0	3.2	75.0	-	PH75S48-24	PH75S110-24	PH75S280-24
24.0	4.2	100.0	-	PH100S48-24	-	PH100S280-24
24.0	6.3	150.0	-	PH150S48-24	PH150S110-24	PH150S280-24
24.0	12.5	300.0	-	PH300S48-24	-	PH300S280-24
24.0	25.0	600.0	-	-	-	PH600S280-24
28.0	1.8	50.0	PH50S24-28	PH50S48-28	PH50S110-28	PH50S280-28
28.0	2.7	75.0	-	PH75S48-28	PH75S110-28	PH75S280-28
28.0	3.6	100.0	-	PH100S48-28	-	PH100S280-28
28.0	5.4	150.0	-	PH150S48-28	PH150S110-28	PH150S280-28
28.0	10.8	302.0	-	PH300S48-28	-	PH300S280-28
28.0	21.5	602.0	-	-	-	PH600S280-28
48.0	6.3	302.0	-	PH300S48-48	-	PH300S280-48
48.0	12.5	600.0	-	-	-	PH600S280-48

## Pinout

Pin Description	Function
-Vin	Negative Input Terminal
+Vin	Positive Input Terminal
+S	Positive Remote sense
-S	Negative Remote sense
+V	Positive Output Terminal
-V	Negative Output Terminal
IOG	Inverter Good Signal
TRIM	Output adjustment trim pin
CNT	On/Off Control Terminal
CS	Current Monitor Signal

## Other Lambda DC-DC Products

PH Full Function	50 - 300W, full function versions of PH
PAQ, PAH, PAF	50 - 600W quarter, half & full bricks
X	10 - 20W, 24 & 48V input DC-DC converters
SX	Surface Mount 20W, 24 & 48 input DC-DC converters

For Additional Information, please visit  
[www.lambdapower.com/products/ph-series-sf.htm](http://www.lambdapower.com/products/ph-series-sf.htm)