



PRODUCT DATA

LP Series
1-to-10 Watt
DC-to-DC Converters

FEATURES

- Single or dual outputs
- $\pm 1.0\%$ accuracy
- Very low noise
- Output protection
- Input/output isolation



Depend on DATEL's LP Series to provide the performance and reliability needed for low power applications. Select from over fifty different models, including both single and dual output versions. Outstanding output accuracy and excellent noise specifications make these converters ideal for sensitive circuits. Additional features include transformer isolation and current-limiting output protection. Compact modular design allows for easy PC board mounting.

For extremely low power applications, inquire about DATEL's DIP Series of one Watt, 24-pin DIP converters.

Common Specifications
(Typical at 25 °C unless noted.)

Input voltage tolerance.....	$\pm 10\%$
Output voltage accuracy.....	$\pm 1.0\%$
Transient recovery time.....	50 μ Sec
Short circuit protection.....	Output current limiting
Operating temp. range.....	-25 to +71 °C
Storage temp. range.....	-55 to +85 °C
Case material	
4.5W models.....	Aluminum
Other models.....	Non-conductive plastic

DUAL OUTPUT MODELS

	INPUT	OUTPUT	NO LOAD/FULL LOAD REGULATION	LINE/LOAD REGULATION	TEMP. COEF.	OUTPUT NOISE & RIPPLE (MAX)	REFLECTED RIPPLE MAX	ISOLATION VOLTAGE MIN	CASE	MODEL
1W	5V	$\pm 12V, \pm 25$ mA	150 mA /350 mA	0.05% / 0.05%	0.02% / °C	20 mV p-p	17 mA p-p	300V dc	F	BPM-12/25-D5
	12V	$\pm 12V, \pm 25$ mA	80 mA /165 mA	0.05% / 0.05%	0.02% / °C	20 mV p-p	8 mA p-p	300V dc	F	BPM-12/25-D12
	28V	$\pm 12V, \pm 25$ mA	30 mA /65 mA	0.05% / 0.05%	0.02% / °C	20 mV p-p	3 mA p-p	300V dc	F	BPM-12/25-D28
	5V	$\pm 15V, \pm 25$ mA	160 mA /400 mA	0.05% / 0.05%	0.02% / °C	20 mV p-p	20 mA p-p	300V dc	F	BPM-15/25-D5
	12V	$\pm 15V, \pm 25$ mA	80 mA /80 mA	0.05% / 0.05%	0.02% / °C	20 mV p-p	9 mA p-p	300V dc	F	BPM-15/25-D12
3W	28V	$\pm 15V, \pm 25$ mA	30 mA /80 mA	0.05% / 0.05%	0.02% / °C	20 mV p-p	4 mA p-p	300V dc	F	BPM-15/25-D28
	5V	$\pm 12V, \pm 125$ mA	130 mA /965 mA	0.02% / 0.02%	0.01% / °C	35 mV p-p	34 mA p-p	500V dc	G1	BPS-12/125-D5
	12V	$\pm 12V, \pm 125$ mA	55 mA /380 mA	0.02% / 0.02%	0.01% / °C	35 mV p-p	23 mA p-p	500V dc	G1	BPS-12/125-D12
	28V	$\pm 12V, \pm 125$ mA	25 mA /145 mA	0.02% / 0.02%	0.01% / °C	35 mV p-p	21 mA p-p	500V dc	G1	BPS-12/125-D28
	5V	$\pm 15V, \pm 100$ mA	135 mA /955 mA	0.02% / 0.02%	0.01% / °C	35 mV p-p	33 mA p-p	500V dc	G1	BPS-15/100-D5
4.5W	12V	$\pm 15V, \pm 100$ mA	55 mA /376 mA	0.02% / 0.02%	0.01% / °C	35 mV p-p	24 mA p-p	500V dc	G1	BPS-15/100-D12
	28V	$\pm 15V, \pm 100$ mA	25 mA /143 mA	0.02% / 0.02%	0.01% / °C	35 mV p-p	21 mA p-p	500V dc	G1	BPS-15/100-D28
	5V	$\pm 15V, \pm 150$ mA	450 mA /1750 mA	0.05% / 0.05%	0.005% / °C	25 mV p-p	87 mA p-p	300V dc	B	BPM-15/150-D5
	24V	$\pm 15V, \pm 150$ mA	80 mA /350 mA	0.05% / 0.05%	0.005% / °C	25 mV p-p	18 mA p-p	300V dc	B	BPM-15/150-D24
5W	28V	$\pm 15V, \pm 150$ mA	70 mA /300 mA	0.05% / 0.05%	0.005% / °C	25 mV p-p	15 mA p-p	300V dc	B	BPM-15/150-D28
	5V	$\pm 12V, \pm 230$ mA	130 mA /1650 mA	0.02% / 0.02%	0.01% / °C	35 mV p-p	58 mA p-p	500V dc	G1	BPS-12/230-D5
	12V	$\pm 12V, \pm 230$ mA	55 mA /690 mA	0.02% / 0.02%	0.01% / °C	35 mV p-p	24 mA p-p	500V dc	G1	BPS-12/230-D12
	24V	$\pm 12V, \pm 230$ mA	25 mA /340 mA	0.02% / 0.02%	0.01% / °C	35 mV p-p	24 mA p-p	500V dc	G1	BPS-12/230-D24
	28V	$\pm 12V, \pm 230$ mA	25 mA /300 mA	0.02% / 0.02%	0.01% / °C	35 mV p-p	23 mA p-p	500V dc	G1	BPS-12/230-D28
	5V	$\pm 15V, \pm 190$ mA	135 mA /1700 mA	0.02% / 0.02%	0.01% / °C	35 mV p-p	60 mA p-p	500V dc	G1	BPS-15/190-D5
	12V	$\pm 15V, \pm 190$ mA	55 mA /710 mA	0.02% / 0.02%	0.01% / °C	35 mV p-p	25 mA p-p	500V dc	G1	BPS-15/190-D12
	24V	$\pm 15V, \pm 190$ mA	30 mA /350 mA	0.02% / 0.02%	0.01% / °C	35 mV p-p	25 mA p-p	500V dc	G1	BPS-15/190-D24
	28V	$\pm 15V, \pm 190$ mA	25 mA /300 mA	0.02% / 0.02%	0.01% / °C	35 mV p-p	24 mA p-p	500V dc	G1	BPS-15/190-D28
	48V	$\pm 15V, \pm 190$ mA	14 mA /180 mA	0.02% / 0.02%	0.01% / °C	35 mV p-p	25 mA p-p	500V dc	G1	BPS-15/190-D48
M01	5V	$\pm 12V, \pm 420$ mA	980 mA /4000 mA	0.05% / 0.05%	0.02% / °C	50 mV p-p	120 mA p-p	300V dc	CB	BPM-12/420-D5
	12V	$\pm 12V, \pm 420$ mA	340 mA /1530 mA	0.05% / 0.05%	0.02% / °C	50 mV p-p	46 mA p-p	300V dc	CB	BPM-12/420-D12
	24V	$\pm 12V, \pm 420$ mA	175 mA /760 mA	0.05% / 0.05%	0.02% / °C	50 mV p-p	23 mA p-p	300V dc	CB	BPM-12/420-D24
	28V	$\pm 12V, \pm 420$ mA	130 mA /650 mA	0.05% / 0.05%	0.02% / °C	50 mV p-p	20 mA p-p	300V dc	CB	BPM-12/420-D28
	5V	$\pm 15V, \pm 412$ mA	260 mA /3700 mA	0.02% / 0.02%	0.01% / °C	35 mV p-p	130 mA p-p	500V dc	CB	BPS-15/412-D5
	12V	$\pm 15V, \pm 412$ mA	110 mA /1590 mA	0.02% / 0.02%	0.01% / °C	35 mV p-p	54 mA p-p	500V dc	CB	BPS-15/412-D12
	24V	$\pm 15V, \pm 412$ mA	55 mA /770 mA	0.02% / 0.02%	0.01% / °C	35 mV p-p	38 mA p-p	500V dc	CB	BPS-15/412-D24
	28V	$\pm 15V, \pm 412$ mA	45 mA /660 mA	0.02% / 0.02%	0.01% / °C	35 mV p-p	39 mA p-p	500V dc	CB	BPS-15/412-D28

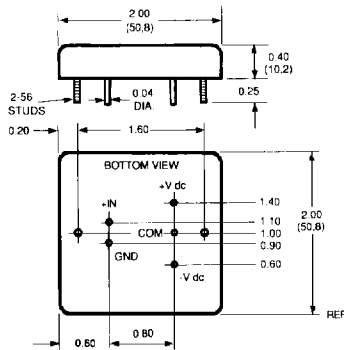
LP Series 1-to-10 Watt DC-to-DC Converters

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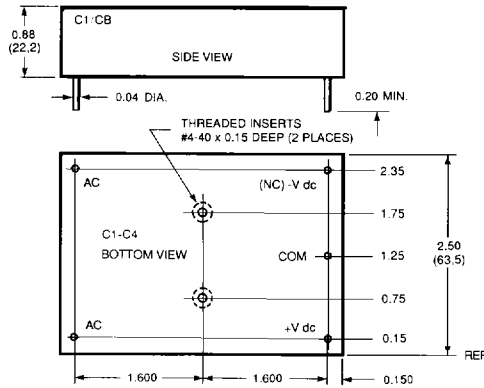
SINGLE OUTPUT MODELS

	INPUT	OUTPUT	NO LOAD/FULL LOAD REGULATION	LINE/LOAD REGULATION	TEMP. COEF.	OUTPUT NOISE & RIPPLE (MAX)	REFLECTED RIPPLE MAX	ISOLATION VOLTAGE MIN	CASE	MODEL
1W	12V	5V, 200 mA	100 mA / 220 mA	0.05% / 0.1%	0.02% / °C	20 mV p-p	1 V mA p-p	300V dc	F	UPM-5/200-D12
	28V	5V, 200 mA	40 mA / 100 mA	0.05% / 0.1%	0.02% / °C	20 mV p-p	5 mA p-p	300V dc	F	UPM-5/200-D28
	5V	12V, 80 mA	220 mA / 500 mA	0.05% / 0.05%	0.02% / °C	20 mV p-p	25 mA p-p	300V dc	F	UPM-12/80-D5
	5V	24V, 40 mA	220 mA / 500 mA	0.05% / 0.05%	0.02% / °C	20 mV p-p	25 mA p-p	300V dc	F	UPM-24/40-D5
	12V	24V, 40 mA	95 mA / 210 mA	0.05% / 0.05%	0.02% / °C	20 mV p-p	10 mA p-p	300V dc	F	UPM-24/40-D12
	5V	28V, 25 mA	160 mA / 400 mA	0.05% / 0.05%	0.02% / °C	20 mV p-p	20 mA p-p	300V dc	F	UPM-28/25-D5
3W	12V	28V, 25 mA	80 mA / 180 mA	0.05% / 0.05%	0.02% / °C	20 mV p-p	9 mA p-p	300V dc	F	UPM-28/25-D12
	5V	5V, 600 mA	125 mA / 935 mA	0.02% / 0.04%	0.02% / °C	50 mV p-p	32 mA p-p	500V dc	G1	UPS-5/600-D5
	12V	5V, 600 mA	50 mA / 364 mA	0.02% / 0.04%	0.02% / °C	50 mV p-p	24 mA p-p	500V dc	G1	UPS-5/600-D12
	28V	5V, 600 mA	20 mA / 135 mA	0.02% / 0.04%	0.02% / °C	50 mV p-p	21 mA p-p	500V dc	G1	UPS-5/600-D28
	5V	12V, 250 mA	140 mA / 863 mA	0.02% / 0.04%	0.02% / °C	50 mV p-p	31 mA p-p	500V dc	G1	UPS-12/250-D5
	28V	12V, 250 mA	25 mA / 125 mA	0.02% / 0.04%	0.02% / °C	50 mV p-p	21 mA p-p	500V dc	G1	UPS-12/250-D28
	12V	24V, 125 mA	125 mA / 530 mA	0.05% / 0.05%	0.02% / °C	20 mV p-p	26 mA p-p	300V dc	G3	UPM-24/125-D12
	5V	28V, 100 mA	300 mA / 1350 mA	0.05% / 0.05%	0.02% / °C	20 mV p-p	67 mA p-p	300V dc	G3	UPM-28/100-D5
5W	12V	28V, 100 mA	125 mA / 500 mA	0.05% / 0.05%	0.02% / °C	20 mV p-p	25 mA p-p	300V dc	G3	UPM-28/100-D12
	12V	5V, 1000 mA	50 mA / 640 mA	0.02% / 0.04%	0.02% / °C	50 mV p-p	54 mA p-p	500V dc	G1	UPS-5/1000-D12
	24V	5V, 1000 mA	25 mA / 320 mA	0.02% / 0.04%	0.02% / °C	50 mV p-p	22 mA p-p	500V dc	G1	UPS-5/1000-D24
	28V	5V, 1000 mA	20 mA / 275 mA	0.02% / 0.04%	0.02% / °C	50 mV p-p	22 mA p-p	500V dc	G1	UPS-5/1000-D28
	5V	12V, 470 mA	500 mA / 2000 mA	0.02% / 0.04%	0.02% / °C	50 mV p-p	61 mA p-p	500V dc	G1	UPS-12/470-D5
	24V	12V, 470 mA	120 mA / 415 mA	0.02% / 0.04%	0.02% / °C	50 mV p-p	26 mA p-p	500V dc	G1	UPS-12/470-D24
	5V	24V, 210 mA	500 mA / 2000 mA	0.05% / 0.01%	0.02% / °C	50 mV p-p	100 mA p-p	300V dc	G2	UPM-24/210-D5
	12V	24V, 210 mA	200 mA / 830 mA	0.05% / 0.01%	0.02% / °C	50 mV p-p	42 mA p-p	300V dc	G2	UPM-24/210-D12
10W	24V	5V, 2000 mA	45 mA / 640 mA	0.02% / 0.05%	0.02% / °C	50 mV p-p	32 mA p-p	500V dc	CB	UPS-5/2000-D24
	28V	5V, 2000 mA	40 mA / 550 mA	0.02% / 0.05%	0.02% / °C	50 mV p-p	33 mA p-p	500V dc	CB	UPS-5/2000-D28
	48V	5V, 2000 mA	20 mA / 320 mA	0.02% / 0.05%	0.02% / °C	50 mV p-p	32 mA p-p	500V dc	CB	UPS-5/2000-D48

CASE B

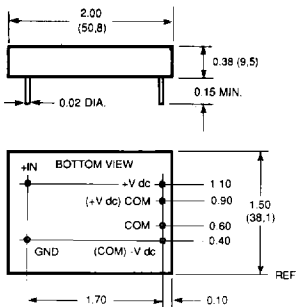
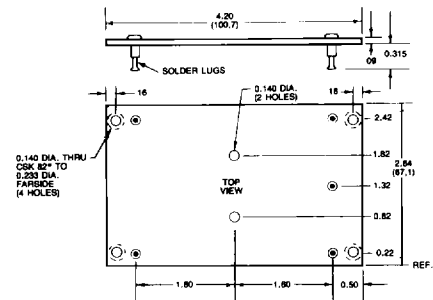


CASE CB

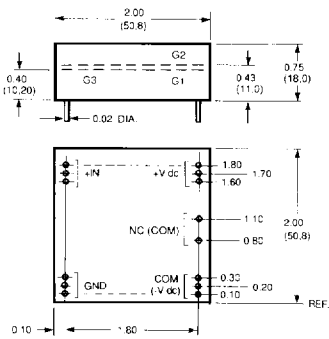


NOTE: PIN DESIGNATIONS IN PARENTHESIS ARE FOR UNIPOLAR OUTPUT MODELS

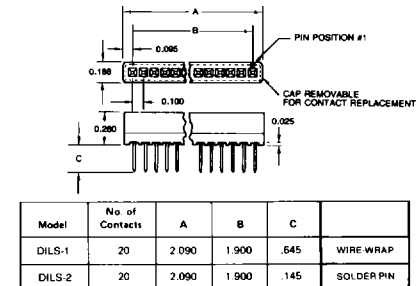
MS-7 Socket (used with 10W Models)



NOTE: PIN DESIGNATIONS IN PARENTHESIS ARE FOR UNIPOLAR OUTPUT MODELS



NOTE: PIN DESIGNATIONS IN PARENTHESIS ARE FOR BIPOLAR OUTPUT MODELS



DIL-1/-2 Socket (used with 1W, 3W, 4.5W, and 5W Models)

CASE F

CASE G

DS-0198A

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