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B & BL

28 VDC to DC

- Superior Reliability, 626,400 Hrs. MTBF
- High Value Linear Power Supply, 2 to 170 Watts
- 314 Standard Models, Single Output, 5 to 500 V dc

Specifications

Input:

24 to 30 V dc. Other inputs available. (See Option H.)

Efficiency:

30% to 60% depending on model. Consult factory for details.

Line Regulation:

Within 0.4% for input change of 24 V dc to 30 V dc with load constant.

Combined Line and Load Regulation:

Within 3.0% for B models or within 5.0% for BL models for load variation between 50% load and full load when line is varied between 24 and 30 V dc. For no load operation, add a resistance on output to draw a minimum of 4% of the maximum rated current.

Ripple:

0.5% rms on Model B;
1.0% rms on Model BL.

Isolation Voltage:

200 V dc input to output and input to case; 200 V dc output to case.

Insulation Resistance:

50 megohms minimum between input and output, input and case, output and case when measured at 50 V dc.

Polarity:

Inputs and outputs are isolated. Either positive or negative side of output may be grounded.

Temperature Range:

Operating -55°C to +100°C baseplate temperature; storage temperature -55°C to +125°C.

Input Transient Protection:

In accordance with MIL-STD-704A (80 V dc for 0.1 second).

Reliability:

The MTBF calculated per MIL-HDBK-217C, under operating conditions of 50°C baseplate temperature, maximum operating input voltage and full rated output power is 626,400 hours for ground benign environment. Consult factory for other model and environment information.

Environment:

Units are encapsulated and hermetically sealed to meet the environmental requirements of MIL-STD-810C and MIL-E-5400P.

Options

The following standard options are available on the B Series power supplies. Please refer to the option section of this catalog for detailed information.

Special Connectors:

A military-type hermetically sealed connector is provided as **Option A** in place of our standard header to extend out the top surface, or as **Option C** extending out the mounting surface. (To order, replace "D" in model number with "A" or "C," i.e., BL02A-5A or BL02C-5A.)

Alternate Header Location:

The standard multiple pin header is relocated to the bottom (baseplate) surface with **Option B**. (To order, replace "D" in model number with "B," i.e., BL02B-5A.)

Severe Shock, Acceleration and Vibration:

Special encapsulation, **Option E**, enables all units to withstand 60 g's shock, 50 g's acceleration and 30 g's vibration. (To order, add "E" after "D" in model number, i.e., BL02DE-5A.)

Wide Input Voltage:

The standard Model B operates from an input range of 24 to 30 V dc. **Option H** recenters the input voltage to provide alternate inputs from 20 V dc to 32 V dc. See page 81 for output current derating. (To order, add "H" after "D" in model number and add new input voltage range, in parentheses after model number, i.e., BL02DH-5A (26-32).)



**MARTEK
POWER**



145 Popular Models¹

Output ² Voltage Range	Output Current (Amps)	Size (See Dwg.)	Weight ³ (Lbs.)	Weight ³ (Kgs.)	Model Number
4.7-5.3	0.400	1B	0.7	0.32	BL02D-5A
	1.0	1A	0.9	0.41	BL05D-5A
	2.0	1	1.0	0.45	BL1D-5A
	4.0	2	1.2	0.55	BL2D-5A
	6.0	4	1.4	0.63	BL3D-5A
	10.0	6A	2.7	1.24	BL5D-5A
5.3-5.9	0.357	1B	0.7	0.32	BL02D-5.6A
	0.9	1A	0.9	0.41	BL05D-5.6A
	1.8	1	1.0	0.45	BL1D-5.6A
	3.6	2	1.2	0.55	BL2D-5.6A
	5.4	4	1.4	0.63	BL3D-5.6A
	8.91	6A	2.7	1.24	BL5D-5.6A
5.9-6.6	0.318	1B	0.7	0.32	BL02D-6.3A
	0.8	1A	0.9	0.41	BL05D-6.3A
	1.6	1	1.0	0.45	BL1D-6.3A
	3.2	2	1.2	0.55	BL2D-6.3A
	4.8	4	1.4	0.63	BL3D-6.3A
	7.92	6	2.1	0.95	BL5D-6.3A
9.3-10.4	0.202	1B	0.7	0.32	B02D-9.9A
	0.50	1A	0.9	0.41	B05D-9.9A
	1.00	1	1.0	0.45	BL1D-9.9A
	2.00	2	1.2	0.55	BL2D-9.9A
	3.00	4	1.4	0.63	BL3D-9.9A
	5.05	6	2.1	0.95	BL5D-9.9A
11.6-13.0	0.163	1B	0.7	0.32	B02D-12.3A
	0.40	1A	0.9	0.41	B05D-12.3A
	0.81	1	1.0	0.45	BL1D-12.3A
	1.62	2	1.2	0.55	BL2D-12.3A
	2.43	4	1.4	0.63	BL3D-12.3A
	4.06	6	2.1	0.95	BL5D-12.3A
13.0-14.8	0.145	1B	0.7	0.32	B02D-13.8A
	0.36	1A	0.9	0.41	B05D-13.8A
	0.72	1	1.0	0.45	BL1D-13.8A
	1.44	2	1.2	0.55	BL2D-13.8A
	2.15	4	1.4	0.63	BL3D-13.8A
	3.62	6	2.1	0.95	BL5D-13.8A
14.8-16.6	0.127	1B	0.7	0.32	B02D-15.7A
	0.32	1A	0.9	0.41	B05D-15.7A
	0.64	1	1.0	0.45	BL1D-15.7A
	1.28	2	1.2	0.55	BL2D-15.7A
	1.92	4	1.4	0.63	BL3D-15.7A
	3.18	6	2.1	0.95	BL5D-15.7A
16.6-18.6	0.114	1B	0.7	0.32	B02D-17.6A
	0.28	1A	0.9	0.41	B05D-17.6A
	0.57	1	1.0	0.45	BL1D-17.6A
	1.14	2	1.2	0.55	BL2D-17.6A
	1.71	4	1.4	0.63	BL3D-17.6A
	2.84	6	2.1	0.95	BL5D-17.6A
23.3-26.1	0.081	1B	0.7	0.32	B02D-24.7A
	0.205	1A	0.9	0.41	B05D-24.7A
	0.410	1	1.0	0.45	BL1D-24.7A
	0.820	2	1.2	0.55	BL2D-24.7A
	1.23	4	1.4	0.63	BL3D-24.7A
	2.02	6	2.1	0.95	BL5D-24.7A
26.1-29.92	0.073	1B	0.7	0.32	B02D-27.6A
	0.180	1A	0.9	0.41	B05D-27.6A
	0.360	1	1.0	0.45	BL1D-27.6A
	0.720	2	1.2	0.55	BL2D-27.6A
	1.08	4	1.4	0.63	BL3D-27.6A
	1.81	6	2.1	0.95	BL5D-27.6A
36.5-40.9	0.052	1B	0.7	0.32	B02D-38.7A
	0.130	1A	0.9	0.41	B05D-38.7A
	0.260	1	1.0	0.45	B1D-38.7A
	0.520	2	1.2	0.55	B2D-38.7A
	0.780	4	1.4	0.63	BL3D-38.7A
	1.29	6	2.1	0.95	BL5D-38.7A
40.9-45.8	0.046	1B	0.7	0.32	B02D-43.3A
	0.115	1A	0.9	0.41	B05D-43.3A
	0.230	1	1.0	0.45	B1D-43.3A
	0.460	2	1.2	0.55	B2D-43.3A
	0.690	4	1.4	0.63	BL3D-43.3A
	1.15	6	2.1	0.95	BL5D-43.3A
45.8-51.8	0.040	1B	0.7	0.32	B02D-48.3A
	0.100	1A	0.9	0.41	B05D-48.3A
	0.200	1	1.0	0.45	B1D-48.3A
	0.400	2	1.2	0.55	B2D-48.3A
	0.600	4	1.4	0.63	BL3D-48.3A
	1.000	6	2.1	0.95	BL5D-48.3A

Output ² Voltage Range	Output Current (Amps)	Size (See Dwg.)	Weight ³ (Lbs.)	Weight ³ (Kgs.)	Model Number
14.8-16.6	0.127	1B	0.7	0.32	B02D-15.7A
	0.32	1A	0.9	0.41	B05D-15.7A
	0.64	1	1.0	0.45	BL1D-15.7A
	1.28	2	1.2	0.55	BL2D-15.7A
	1.92	4	1.4	0.63	BL3D-15.7A
	3.18	6	2.1	0.95	BL5D-15.7A
16.6-18.6	0.114	1B	0.7	0.32	B02D-17.6A
	0.28	1A	0.9	0.41	B05D-17.6A
	0.57	1	1.0	0.45	BL1D-17.6A
	1.14	2	1.2	0.55	BL2D-17.6A
	1.71	4	1.4	0.63	BL3D-17.6A
	2.84	6	2.1	0.95	BL5D-17.6A
23.3-26.1	0.081	1B	0.7	0.32	B02D-24.7A
	0.205	1A	0.9	0.41	B05D-24.7A
	0.410	1	1.0	0.45	BL1D-24.7A
	0.820	2	1.2	0.55	BL2D-24.7A
	1.23	4	1.4	0.63	BL3D-24.7A
	2.02	6	2.1	0.95	BL5D-24.7A
26.1-29.92	0.073	1B	0.7	0.32	B02D-27.6A
	0.180	1A	0.9	0.41	B05D-27.6A
	0.360	1	1.0	0.45	BL1D-27.6A
	0.720	2	1.2	0.55	BL2D-27.6A
	1.08	4	1.4	0.63	BL3D-27.6A
	1.81	6	2.1	0.95	BL5D-27.6A
36.5-40.9	0.052	1B	0.7	0.32	B02D-38.7A
	0.130	1A	0.9	0.41	B05D-38.7A
	0.260	1	1.0	0.45	B1D-38.7A
	0.520	2	1.2	0.55	B2D-38.7A
	0.780	4	1.4	0.63	BL3D-38.7A
	1.29	6	2.1	0.95	BL5D-38.7A
40.9-45.8	0.046	1B	0.7	0.32	B02D-43.3A
	0.115	1A	0.9	0.41	B05D-43.3A
	0.230	1	1.0	0.45	B1D-43.3A
	0.460	2	1.2	0.55	B2D-43.3A
	0.690	4	1.4	0.63	BL3D-43.3A
	1.15	6	2.1	0.95	BL5D-43.3A
45.8-51.8	0.040	1B	0.7	0.32	B02D-48.3A
	0.100	1A	0.9	0.41	B05D-48.3A
	0.200	1	1.0	0.45	B1D-48.3A
	0.400	2	1.2	0.55	B2D-48.3A
	0.600	4	1.4	0.63	BL3D-48.3A
	1.000	6	2.1	0.95	BL5D-48.3A

1. 169 other standard models are available with outputs ranging continuously from 4.7 V dc to 514 V dc and in power levels of: 2, 5, 10, 20, 30, 50, 100 and 170 watts. To

order an unlisted model, please consult salesman for nearest standard output voltage, and use model numbering system below.

2. Output voltage is continuously adjustable between the limits shown by means of an externally accessible screwdriver adjustment potentiometer.

3. Maximum weight, not including options.

Continued on next page



Popular Models¹

Continued

Output ² Voltage Range	Output Current (Amps)	Size (See Dwg.)	Weight ³ (Lbs.)	Weight ³ (Kgs.)	Model Number	Output ² Voltage Range	Output Current (Amps)	Size (See Dwg.)	Weight ³ (Lbs.)	Weight ³ (Kgs.)	Model Number
59.0-66.0	0.032	1B	0.7	0.32	B02D-63A	208-233	0.009	1B	0.7	0.32	B02D-220A
	0.080	1A	0.9	0.41	B05D-63A		0.023	1A	0.9	0.41	B05D-220A
	0.160	1	1.0	0.45	B1D-63A		0.046	1	1.0	0.45	B1D-220A
	0.320	2	1.2	0.55	B2D-63A		0.092	2	1.2	0.55	B2D-220A
	0.480	4	1.4	0.63	B3D-63A		0.138	4	1.4	0.63	B3D-220A
	0.795	6	2.1	0.95	BL5D-63A		0.228	6	2.1	0.95	B5D-220A
	1.59	11	4.0	1.85	BL10D-63A		0.456	11	4.0	1.85	BL10D-220A
	2.69	14	10.3	4.68	BL17D-63A		0.772	14	10.3	4.68	BL17D-220A
74.0-83.0	0.025	1B	0.7	0.32	B02D-79A	365-409	0.005	1B	0.7	0.32	B02D-387A
	0.063	1A	0.9	0.41	B05D-79A		0.013	1A	0.9	0.41	B05D-387A
	0.127	1	1.0	0.45	B1D-79A		0.026	1	1.0	0.45	B1D-387A
	0.254	2	1.2	0.55	B2D-79A		0.052	2	1.2	0.55	B2D-387A
	0.381	4	1.4	0.63	B3D-79A		0.078	4	1.4	0.63	B3D-387A
	0.634	6	2.1	0.95	BL5D-79A		0.129	6	2.1	0.95	B5D-387A
	1.27	11	4.0	1.85	BL10D-79A		0.258	11	4.0	1.85	BL10D-387A
	2.15	14	10.3	4.68	BL17D-79A		0.439	14	10.3	4.68	BL17D-387A
83.0-93.0	0.023	1B	0.7	0.32	B02D-88A	458-514	0.004	1B	0.7	0.32	B02D-486A
	0.057	1A	0.9	0.41	B05D-88A		0.010	1A	0.9	0.41	B05D-486A
	0.114	1	1.0	0.45	B1D-88A		0.021	1	1.0	0.45	B1D-486A
	0.228	2	1.2	0.55	B2D-88A		0.041	2	1.2	0.55	B2D-486A
	0.342	4	1.4	0.63	B3D-88A		0.062	4	1.4	0.63	B3D-486A
	0.568	6	2.1	0.95	BL5D-88A		0.103	6	2.1	0.95	B5D-486A
	1.14	11	4.0	1.85	BL10D-88A		0.206	11	4.0	1.85	BL10D-486A
	1.93	14	10.3	4.68	BL17D-88A		0.349	14	10.3	4.68	BL17D-486A
148-166	0.013	1B	0.7	0.32	B02D-157A						
	0.032	1A	0.9	0.41	B05D-157A						
	0.064	1	1.0	0.45	B1D-157A						
	0.128	2	1.2	0.55	B2D-157A						
	0.192	4	1.4	0.63	B3D-157A						
	0.318	6	2.1	0.95	B5D-157A						
	0.636	11	4.0	1.85	BL10D-157A						
	1.082	14	10.3	4.68	BL17D-157A						

1. 169 other standard models are available with outputs ranging continuously from 4.7 V dc to 514 V dc and in power levels of: 2, 5, 10, 20, 30, 50, 100 and 170 watts. To

order an unlisted model, please consult salesman for nearest standard output voltage, and use model numbering system below.

2. Output voltage is continuously adjustable between the limits shown by means of an externally accessible screwdriver adjustment potentiometer.

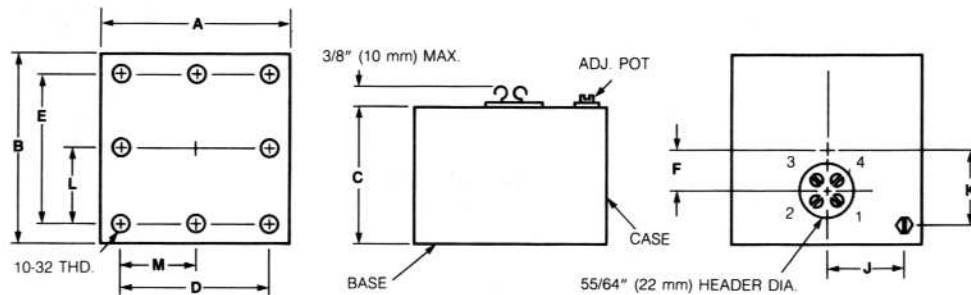
3. Maximum weight, not including options.

Model Numbering System

Product Line Series	Code * Output Power	Header Type	Options	Dash	Output Voltage Center of Adjustable Range	A
B or BL	05	D		—	13.8	A
*Code	Output Power	*Code	Output Power	*Code	Output Power	
02	2 Watts	2	20 Watts	10	100 Watts	
05	5 Watts	3	30 Watts	17	170 Watts	
1	10 Watts	5	50 Watts			



Case Drawings



Dimensions

Inches
mm

Case Size	A	B	C	D	E	F	J	K	L	M
1	1-1/2 38	2-3/4 70	3 76	1.00 25.4	2.25 57.2	9/16 14	1/2 13	1-1/8 29		
1A	1-1/2 38	2-3/4 70	2-3/4 70	1.00 25.4	2.25 57.2	9/16 14	1/2 13	1-1/8 29		
1B	1-1/2 38	2 51	2 51	1.00 25.4	1.50 38.1	0 0	1/2 13	3/4 19		
2	1-7/8 48	2-3/4 70	3-1/4 83	1.37 34.8	2.25 57.2	3/4 19	11/16 17	1-1/8 29		
4	2-1/4 57	2-3/4 70	3-1/4 83	1.75 44.5	2.25 57.2	3/4 19	7/8 22	1-1/8 29		
6	2-3/4 70	3 76	3-1/4 83	2.25 57.2	2.50 63.5	3/4 19	1-1/8 29	1-1/4 32		
6A	2-3/4 70	3 76	4 102	2.25 57.2	2.50 63.5	3/4 19	1-1/8 29	1-1/4 32		
11	3 76	5-1/2 140	3-1/4 83	2.50 63.5	5.00 127.0	2-1/8 54	1-1/4 32	2-1/2 64	2.50 63.5	
14	6 152	6 152	4 102	5.50 139.7	5.50 139.7	2-3/8 60	2-3/4 70	2-3/4 70	2.75 69.8	2.75 69.8

Tolerances: If English unit is a fraction, $\pm 1/32$ inch, (0.8 mm); if English unit is a decimal, $\pm .015$ inch, (0.4 mm).

Material: Base — Aluminum 6061-T6, Case — Steel

Finish: Black flat lacquer per FED-STD-595, Color 37038.

Mounting: 10-32 THD inserts 5/32\" minimum depth are provided in baseplate. Steel 10-32 bolts American Standard, unified national fine series,

slotted studs are supplied with each unit. Metric hardware and inserts available as a special order. B02, BL02 use 6-32 THD inserts (5/32\" minimum depth).

Pin Designations

(Standard model, not including options. Consult factory for details.)

Input Current

(Typical)
Amps

