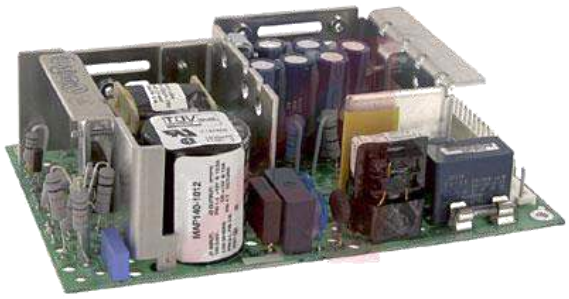
MAP140 Series
AC-DC Power Supplies



Bel Power Solutions MAP140 Series provides a full range of options and up to 30 watts more power than comparable products in this industry-standard footprint. With a universal input from 85 to 264 VAC and power densities up to 2.6 watts/inch^3, the MAP140 meets the most rigorous requirements of commercial, industrial, and datacom systems.

Rated for use in convection and forced-air cooled (200 LFM) applications, the MAP140 delivers dependable power with a Mean Time Between Failures (MTBF) in excess of 180,000 hours.

In addition to UL, CSA, and NEMKO regulatory compliance, the MAP140 displays the CE Mark.

RoHS Compliant

Key Features & Benefits

- RoHS Lead-Solder-Exemption Compliant
- Universal Input 85-264 VAC
- Input Transient & ESD Compliance to EN61000-4-2/-3/-4
- CE marked to Low Voltage Directive
- Industry-Standard Footprint: 7.0 x 4.3 x 1.8 inch (177.8 x 109.2 x 45.7 mm)
- Remote Sense and Overvoltage Protection
- Power Fail Signal Standard on MAP140-3000P, Optional on MAP140-1012 and MAP140-1024G
- Optional Overtemperature Protection, L-bracket and Cover

1. SINGLE-OUTPUT MODEL SELECTION

MODEL[5]	OUTPUT VOLTAGE	ADJUSTMENT RANGE	CONVECTION COOLED CURRENT	FORCED AIR CURRENT [1]	LINE REGULATION	LOAD REGULATION	RIPPLE & NOISE [2]	INITIAL SETTING ACCURACY
MAP140-1012*	12V/15V	11.0V to 16.0V	9.2/7.3A [3]	12.5A/10A[3]	0.1%	0.5%	1%	11.97V to 12.03V
MAP140-1024G	24V/28V	22.8V to 29.2V	4.6/4A [3]	6.3A/5.4A [3]	0.1%	0.5%	1%	23.95V to 24.05V
MAP140-1048*	48V	45.6V to 54.0V	2.3A	3.1A	0.1%	0.5%	1%	47.9V to 48.1V

2. MULTIPLE-OUTPUT MODEL SELECTION – 80 W CONTINUOUS OUTPUT POWER

MODEL[5]	OUTPUT VOLTAGE	ADJUSTMENT RANGE	OUTPUT CURRENT [4]	PEAK OUTPUT CURRENT [4]	LINE REGULATION	LOAD REGULATION	RIPPLE & NOISE [2]	INITIAL SETTING ACCURACY
MAP140-3000P*	+5V	4.75V to 5.25V	16A/25A $_{PK}$	20A/25A $_{PK}$	0.2%	1%	1%	5.09V to 5.11V
	+12V	Fixed	4A/9A $_{PK}$	4A/9A $_{PK}$	0.1%	2%	1%	11.97V to 12.03V
	-12V	Fixed	1A/1.5A $_{PK}$	1A/1.5A $_{PK}$	0.1%	2%	1%	-11.4V to -12.6V

[1] With minimum 200 LFM forced air cooling.
[2] Maximum peak to peak noise expressed as a percentage of output voltage, 20MHz bandwidth.
[3] MAP140-1012 output currents are expressed as 12V/15V operation. MAP140-1024G output currents are expressed as 24V/28V operation.
[4] Peak loads up to 140 Watts for 60 seconds or less are acceptable, (10% duty cycle max.). Peak power must not exceed 140 watts.
[5] Non-G models use lead solder exemption and are not recommended for new designs.
Model numbers highlighted in yellow are not recommended for new designs.
* Obsolete

3. INPUT SPECIFICATIONS

PARAMETER	CONDITIONS / DESCRIPTION		MIN	NOM	MAX	UNITS
Input Voltage - AC	Continuous input range		85		264	VAC
Input Frequency	AC input		47		63	Hz
Brown Out Protection	Lowest AC input voltage that regulation is maintained with full rated loads.		85			VAC
Hold-up Time	Nominal AC input voltage (110VAC), full rated load.	110 watt load: 140 watt load:	20 16			ms
Input Current	85 VAC (140 W load) 110 VAC (140 W load)				2.5 2.0	A_{RMS}
Input Protection	Non-user serviceable internally located AC input line fuse.					
Inrush Surge Current	Internally limited by thermistor, Vin = 264 VAC (one cycle), 25° C				41	A_{PK}
Operating Frequency	Switching frequency of main transformer			22		kHz

4. OUTPUT SPECIFICATIONS

PARAMETER	CONDITIONS / DESCRIPTION		MIN	NOM	MAX	UNITS
Efficiency	Full load @110 VAC. Varies with distribution of loads among outputs			70% typical		
Minimum Loads	Single output models MAP140-3000P, total output current of V1 + V2 [6]		0 2			Amps
Ripple and Noise	Full load, 20 MHz bandwidth.			See Model Selection Chart		
Output Power	Single output models			See Model Selection Chart		
	MAP140-3000P with convection cooling				80	Watts
	MAP140-3000P with 200 LFM forced air cooling				140	Watts
Overshoot / Undershoot	Output voltage overshoot/undershoot at turn-on / turn-off.				1	%
Regulation	Varies by output, regulation includes: line changes from 90-132 VAC or 175-264, changes in load starting at 20% load and changing to 100% load.			See Model Selection Chart		
Transient Response	Recovery time, to within 1% of initial set point due to a 50-100% load change, 4% max. deviation. (Main output only on multiple output units).			500		µs
Turn-on Delay	Time required for initial output voltage stabilization.	MAP140-3000P Single output models			1 2	Sec
Turn-on Rise Time	Time required for output voltage to rise from 10% to 90%.				20	ms

[6] Minimum load is required only to meet the regulation limits of V3.

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5. INTERFACE SIGNALS & INTERNAL PROTECTION

PARAMETER	CONDITIONS/DESCRIPTION		MIN	NOM	MAX	UNITS
Overvoltage Protection	Provided on single output models and V1 of MAP140-3000P.	MAP140-3000P, V1	6.1		7.2	V
		MAP140-1012	17.3		20.2	
		MAP140-1024G	32.2		37.8	
		MAP140-1048	55.2		64.8	
Overload Protection	Fully protected against output overload and short circuit. Automatic recovery upon removal of overload condition.					
Remote Sense	Voltage drop compensated for at the load.				250	mV
Power Fail Warning	TTL compatible logic signal. Time before regulation dropout due to loss of input power at 140 watts, 110 VAC. Standard on MAP140-3000P and optional on MAP140-1012.		2.3			ms
Overtemperature Protection	Optional signal provides system shutdown due to excessive internal temperature. See options.					

6. SAFETY, REGULATORY AND EMI SPECIFICATIONS

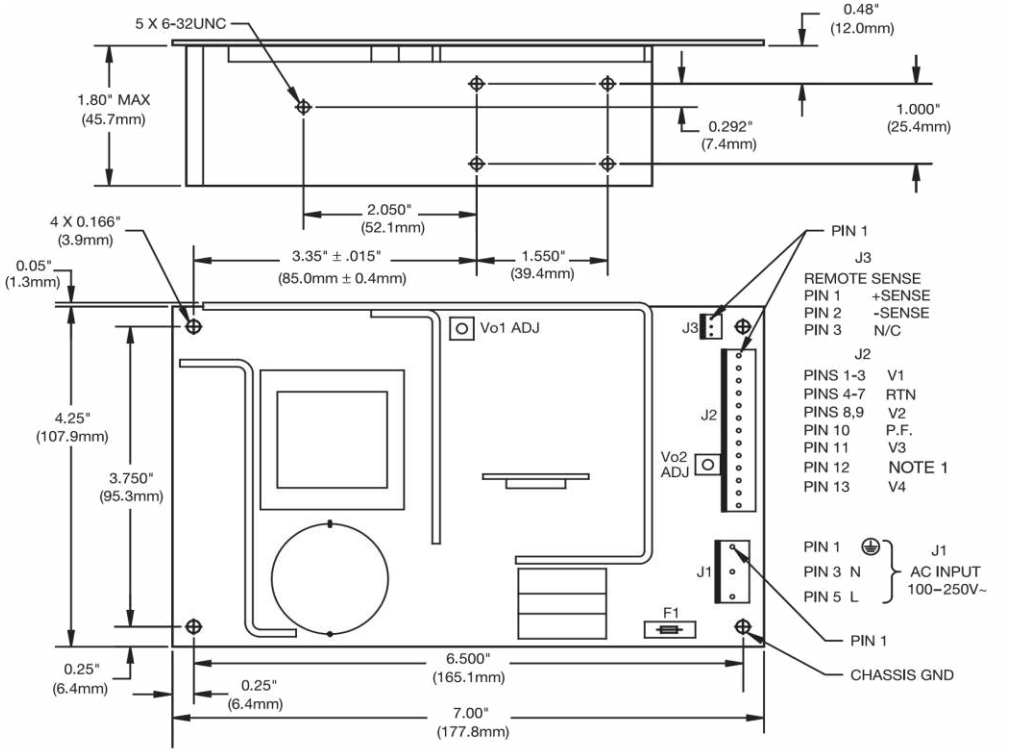
PARAMETER	CONDITIONS / DESCRIPTION		MIN	NOM	MAX	UNITS
Agency Approvals	Approved to the latest edition of the following standards; UL/CSA60950-1 2nd, IEC60950-1 2nd and EN60950-1 2nd.					
Dielectric Withstand Voltage	Input to Chassis Input to Output (tested by manufacturer only)		2121 4242			VDC
Electromagnetic Interference	FCC CFR title 47 Part 15 Sub-Part B - conducted & radiated			B		Class
Conducted	EN55022 / CISPR 22 conducted			B		Class
ESD Susceptibility	Per EN61000-4-2, level 4		8			kV
Radiated Susceptibility	Per EN61000-4-3, level 3		10			V/M
EFT/Burst	Per EN61000-4-4, level 3		±2			kV
Input Transient Protection	EN61000-4-5 Class 3	Line to Line Line to Ground	1 2			kV
Insulation Resistance	Input to output		10			MΩ
Leakage Current	Per EN60950, 264 VAC	110 VAC 264 VAC			0.5 1.5	mA

7. ENVIRONMENTAL SPECIFICATIONS

PARAMETER	CONDITIONS / DESCRIPTION		MIN	NOM	MAX	UNITS
Altitude	Operating Non-operating				10k 40k	ASL Feet
Operating Temperature[9]	Derate linearly above 50°C by 2.5% per °C	At 100% load: At 50% load:	0 0		50 70	°C
Storage Temperature			-40		85	°C
Temperature Coefficient	0°C to 70°C (after 15 minute warm-up)			±0.02	±0.05	%/°C
Relative Humidity	Non-condensing				95	%RH
Shock	Operating, peak acceleration				20	G
Vibration	Random vibration, 10Hz to 2kHz, 3 axis				6	G_{RMS}

8. MECHANICAL SPECIFICATIONS / OPTIONS

PARAMETER	CONDITIONS / DESCRIPTION
Dimensions	177.8 x 109.2 x 50.0 mm (7.00 x 4.30 x 1.97 inch)
Weight	0.59 kg (1.3 lbs)
Cover (Option)	Add 'C' suffix to model number (Please check with factory for availability). For convection cooled applications, derate output power to 75 watts, maximum. Dimensions: 182.9 x 106.7 x 50.0 mm (7.20 x 4.20 x 1.97 inch)
Power Fail Signal	Add 'P' suffix to model number. Provides 2.3mS warning time before main output drops 5%. Warning time increases at reduced load levels. Option available only on MAP140-1012 and MAP140-1024G. Power fail is standard on MAP140-3000P.
Thermal Shutdown	Add 'T' suffix to model number. Initiates shut-down in the event of an overtemperature condition. Automatic recovery. Where available, Power Fail signal is initiated prior to shutdown.



MOLEX PCB PIN CONNECTOR INFORMATION				
REF DESIG	SERIES	MOLEX P/N	SPACING	PINS, SQUARE
J1	41671 or	26-48-1055*	0.156 (3.96)	0.045 (1.14)
	41791	26-60-4050*	0.156 (3.96)	0.045 (1.14)
J2	41671 or	26-48-1135	0.156 (3.96)	0.045 (1.14)
	41791	26-60-4130	0.156 (3.96)	0.045 (1.14)
J3	6373	22-23-2031	0.100 (2.54)	0.025 (0.64)

*With pins 2 & 4 removed for double spacing.

NOTES:

1.) When the V4 output is a positive (+) output, pin 12 on J2 is connected to RTN.
When the V4 output is a negative (–) output, pin 12 on J2 is connected to V4.

Figure 1. Mechanical Drawing

For more information on these products consult: tech.support@psbel.com

NUCLEAR AND MEDICAL APPLICATIONS - Products are not designed or intended for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems.
TECHNICAL REVISIONS - The appearance of products, including safety agency certifications pictured on labels, may change depending on the date manufactured. Specifications are subject to change without notice.

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