MAP130 Series

AC-DC Power Supplies

Bel Power Solutions MAP130 Series of single and multiple output power supplies provide fully regulated outputs with high peak current capabilities in a compact 8.5 x 4.5 x 2.0-inch U-channel chassis. Other standard features include auto select AC input, thermal shutdown (with warning), remote sense, and metric and SAE mounting inserts. MAP130 series complies with EMC product standard EN 61204-3.

This convection-cooled series is designed for use in industrial environments in temperatures up to 50°C.

All products are approved to the latest international regulatory standards and all RoHS compliant models bear the CE Mark.

RoHS Compliant

KEY FEATURES

- Automatic 110/230 V Input Voltage Selection
- All Outputs Fully Regulated
- Remote Sense
- Overvoltage Protection and Overtemperature Protection
- Power Fail Signal Included
- Greater than 100,000 Hour MTBF
- U-Channel Chassis: 8.5 x 4.5 x 2.0 inch (215.9 x 114.3 x 50.8 mm)
- Optional Cover
- Metric and SAE Mounting Inserts
- RoHS Compliant
- CE Marked to Low Voltage Directive
- Meets EMC Standards: EN 61204-3
  EN 55032
  EN 61000-3-3

1. SINGLE-OUTPUT MODEL SELECTION

MODEL [6]	OUTPUT VOLTAGE	ADJUSTMENT RANGE	CONTINUOUS CURRENT	PEAK CURRENT[1]	LINE REGULATION	LOAD REGULATION	RIPPLE & NOISE[2]	INITIAL SETTING ACCURACY
MAP130-1005G	5V	4.75V to 5.50V	26A	30A	0.2%	1%	1%	5.1V to 5.2V
MAP130-1012G	12/15V	11.4V to 15.75V	12A/10A[3]	13.8A/11A[3]	0.2%	1%	1%	12.0V to 12.2V
MAP130-1024G	24V/28V	22.5V to 30.0V	6.25A/5.4A[3]	6.8A/5.9A[3]	0.2%	1%	1%	23.9V to 24.1V

2. MULTIPLE-OUTPUT MODEL SELECTION – 130 W CONTINUOUS OUTPUT POWER

MODEL[6]	OUTPUT VOLTAGE	ADJUSTMENT RANGE	OUTPUT CURRENT	PEAK CURRENT[4]	LINE REGULATION	LOAD REGULATION	RIPPLE & NOISE[5]	INITIAL SETTING ACCURACY
MAP130-4000G	+5V	4.75V to 5.50V	20A	30A	0.2%	1%	1%	5.1V to 5.2V
	+12V	11.5V to 12.5V	5A	10A	0.5%	2%	1%	11.75V to 12.0V
	-5V	Fixed	1A	1A	0.5%	2%	1%	-4.8V to -5.2V
	-12V	Fixed	1A	1A	0.5%	2%	1%	-11.6V to -12.4V
MAP130-4001G	+5V	4.75V to 5.50V	20A	30A	0.2%	1%	1%	5.1V to 5.2V
	+24V	23.0V to 25.0V	3.5A	5A	0.5%	2%	2%	23.9V to 24.1V
	-12V	Fixed	1A	1A	0.5%	2%	1%	-11.6V to -12.4V
	+12V	Fixed	1A	1A	0.5%	2%	1%	-11.6V to -12.4V
MAP130-4002G	+5V	4.75V to 5.50V	20A	30A	0.2%	1%	1%	5.1V to 5.2V
	+12V	11.5V to 12.5V	5A	10A	0.5%	2%	1%	11.9V to 12.1V
	-12V	Fixed	1A	1A	0.5%	2%	1%	-11.6V to -12.4V
	+12V	Fixed	1A	1A	0.5%	2%	1%	11.6V to 12.4V
MAP130-4003G	+5V	4.75V to 5.50V	20A	30A	1%	1%	1%	5.1V to 5.2V
	+15V	14.0V to 16.0V	4A	8A	1%	2%	1%	15.0V to 15.1V
	-5V	Fixed	1A	1A	2%	2%	1%	-4.8V to -5.2V
	-15V	Fixed	1A	1A	2%	2%	1%	-14.7V to -15.3V
MAP130-4010G	+5V	4.75V to 5.50V	20A	30A	0.2%	1%	1%	5.1V to 5.25V
	+12V	11.5V to 12.8V	5A	10A	0.5%	2%	1%	11.75V to 12.0V
	-5V	Fixed	1A	1A	0.5%	2%	1%	-4.8V to -5.2V
	-12V	Fixed	3A	3A	0.5%	2%	1%	-11.6V to -12.4V

[1] Peak load for 60 seconds or less are acceptable, 10% duty cycle, maximum.
[2] Typical peak to peak noise expressed as a percentage of output voltage, 20 MHz bandwidth.
[3] MAP130-1012 output currents are expressed as 12 V / 15 V operation. MAP130-1024 output currents are expressed as 24 V / 28 V operation.
[4] Peak loads up to 165 Watts, (total of all outputs), for 60 seconds or less are acceptable, (10% duty cycle max.).
[5] Maximum peak to peak noise expressed as a percentage of output voltage, 20 MHz bandwidth.
[6] Models without suffix G are not RoHS-compliant (Leaded solder used) and are not recommended for new designs or already EOL.
Model numbers highlighted in yellow are EOL / Obsolete

3. INPUT SPECIFICATIONS

PARAMETER	CONDITIONS / DESCRIPTION		MIN	NOM	MAX	UNITS
Input Voltage - AC	Auto-ranging	Low Range High Range	90 175	110 230	132 264	VAC
Input Frequency	AC input		47		63	Hz
Brown Out Protection	Lowest AC input voltage when regulation is maintained with full rated loads.		90			VAC
Hold-up Time	Nominal AC input voltage (115 VAC)	130 W load:	40			ms
Input Current	90 VAC, 130 W load			3.3		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.				38	A_{PK}
Operating Frequency	Switching frequency of main transformer.	Range:	16		120	kHz

4. OUTPUT SPECIFICATIONS

PARAMETER	CONDITIONS / DESCRIPTION	MIN	NOM	MAX	UNITS
Efficiency	Full Load @ 115 VAC (Varies with distribution of loads among outputs.)		71% typical		
Minimum Loads	MAP130-1012 MAP130-1024 MAP130-1005 and all multiple output models, main channel only	1.25 0.63 3.00			A
Ripple and Noise	Full Load, 20 MHz Bandwidth.		See Model Selection Chart		
Output Power	Continuous output power, all multiple output models. Peak output power (60s max., 10% duty cycle), all multiple output models.			130 165	W
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 V, 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.			2	s
Turn-on Rise Time	Time required for output voltage to rise from 10% to 90%.			20	ms

5. INTERFACE SIGNALS & INTERNAL PROTECTION

PARAMETER	CONDITIONS / DESCRIPTION		MIN	NOM	MAX	UNITS
Overvoltage Protection	Provided on single output units and only the main output of multiple output units.	MAP130-1012 MAP130-1024 All other models	17.0 32.0 5.5		22.0 37.0 6.8	VDC
Overcurrent Protection	All models have inherent short circuit protection. Units will automatically restart at the removal of the fault.					
Remote Sense	Total voltage compensation for main output cable losses.				250	mV
Power Fail Warning [7]	Logic LO (denotes power fail detected).				0.7	V
	Logic HI with internal pull-up to output.			10		kΩ
	Power Fail trip point, maximum load, decreasing line.		86		94	VAC
	Time before regulation dropout, at full load, due to loss of input power.		5			ms
Overtemperature Warning [8]	Warning prior to system shutdown due to excessive internal temperatures. Shifts Power Fail signal to a logic LO state.		20			ms

[7] Power Fail not available on MAP130-1012 and MAP130-1024.
[8] MAP130-1012 and MAP130-1024 have overtemperature protection, but do not have the warning feature.

6. SAFETY SPECIFICATIONS

PARAMETER	CONDITIONS / DESCRIPTION	MIN	NOM	MAX	UNITS
Agency Approvals	Approved to the latest edition of the following standards; UL/CSA 60950-1, IEC 62368-1 and EN 62368-1.				
Dielectric Withstand Voltage	Input to Chassis Input to Output (tested by manufacturer only)	2121 4242			VDC
Insulation Resistance	Input to output	7			MΩ
Touch Current	EN 62368-1, 264 VAC			800	µA

7. EMC SPECIFICATIONS

MAP130 complies with EMC product standard EN 61204-3.

Conducted emissions EN 55032 Class B
Radiated emissions EN 55032 Class B (MAP130-1005 meets Class A)

PHENOMENON	BASIC STANDARD	TEST ITEM	TEST SPECIFICATION	PERFORMANCE CRITERIA
Radio-frequency electromagnetic field Amplitude modulated	EN 61000-4-3	Frequency Field strength AM 1 kHz	80 - 1000 MHz 10 V/m 80% 1,4 to 2 GHz 3 V/m 80% 2 to 2,7 GHz 1 V/m 80 %	A
Fast transient	EN 61000-4-4	Line to ground voltage Tr/Th Repetition freq.	±2 kV 5/50 ns 100 kHz	A
Conducted disturbances induced by radio-frequency fields	EN 61000-4-6	Frequency Amplitude AM 1 kHz	0,15 to 80 MHz 10 V 80 %	A
Voltage dips	EN 61000-4-11	Residual voltage	0 % during 1/2 cycle 0 % during 1 cycle 40 % during 10/12 cycles at 50/60 Hz 70 % during 25/30 cycles at 50/60 Hz 80 % during 250/300 cycles at 50/60 Hz	A B

8. ENVIRONMENTAL SPECIFICATIONS

PARAMETER	CONDITIONS / DESCRIPTION		MIN	NOM	MAX	UNITS
Altitude	Operating Non-operating				6.5 40	kilofeet
Operating Temperature [11]	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		5		95	%RH
Shock	Operating, peak acceleration				20	G_{PK}
Vibration	Random vibration, 10 Hz to 2 kHz, 3 axis				6	G_{RMS}

[11] External airflow of minimum 23 CFM used in ambient over 25°C.

9. MECHANICAL SPECIFICATIONS / OPTIONS

PARAMETER	CONDITIONS / DESCRIPTION	MIN	NOM	MAX	UNITS
Dimensions			215.9 x 114.3 x 50.8 8.50 x 4.50 x 2.00		mm in
Weight			1.13 2.5		kg lb
Cover (Option)	Order the cover number 412-59586-G separately. For convection cooled applications with covers, derate output power as follows: Derate all multiple output models and MAP130-1005 to 120 watts. Derate MAP130-1012 and MAP130-1024 to 140 watts.				
	Dimensions:		215.9 x 114.3 x 55.1 8.5 x 4.5 x 2.17		mm in

10. CONNECTIONS

CONNECTOR	CONDITIONS / DESCRIPTION
Input & Output Connectors	6-32 screw wire clamps on 0.312" (7.9 mm) centers, 0.045" (1.1 mm) square pins on 0.156" (3.96 mm) centers, Mates with Molex series 2139, 6442 & 41695
Power Fail Connections, J2	0.035" (0.89 mm) square pins on 0.100" (2.54 mm) centers; Mates with Molex series 2695 & 6471
Chassis	0.090" (2.286 mm) aluminum alloy with clear finish

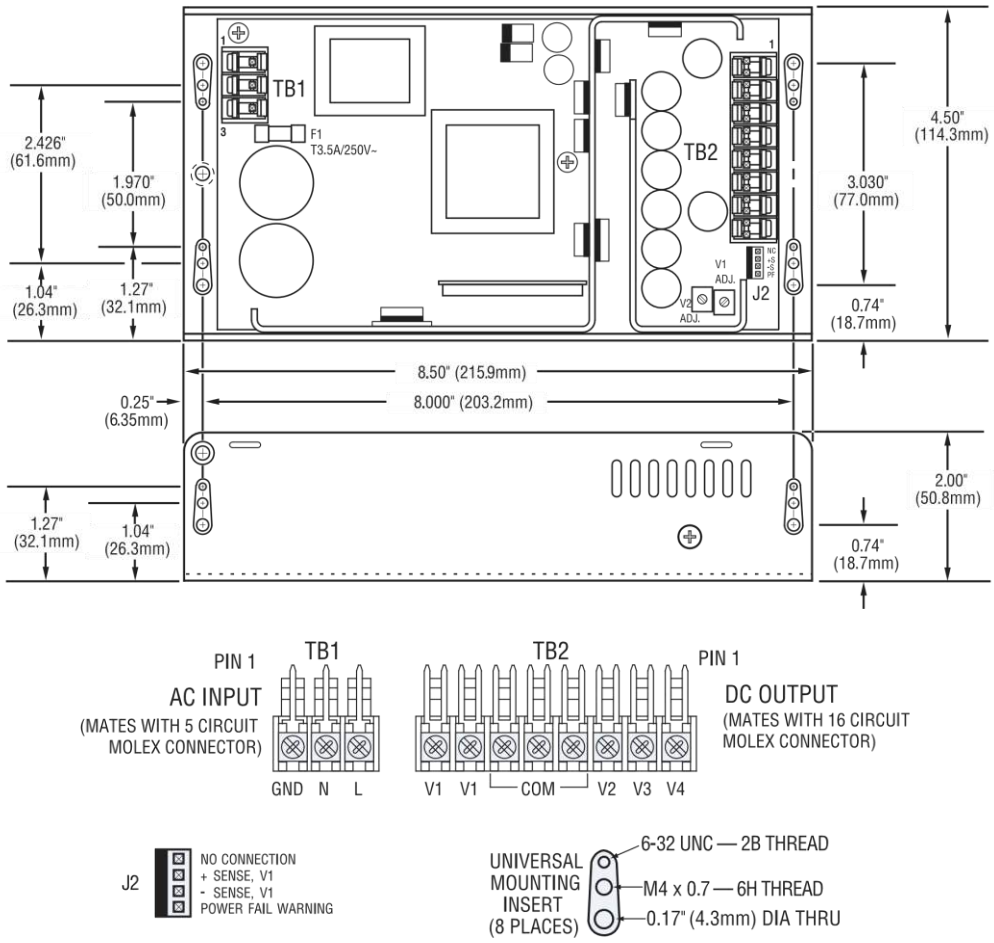

Figure 1. Mechanical Drawing

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.