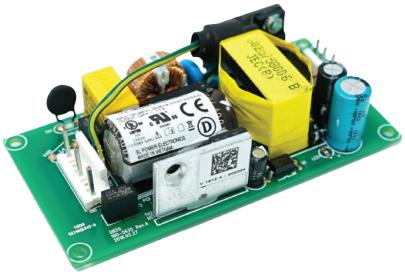
GB30 Family

30W Single Output Medical/Industrial Grade



Medical

Industrial

FEATURES AND BENEFITS

- 30W Open Frame and PCB-mount Power Supply
- 1.9" x 4.0" x 1.0" Package
- Universal Input 90VAC–264VAC
- <0.1W No Load Input Power
- Approved to CSA/EN/IEC/UL62368-1
- Meets Heavy Industrial and IEC60601-1-2 4th Edition Levels of EMC
- Approved to CSA/EN/IEC/UL60601-1 3rd Edition
- E-cap Life of >8 Years
- >1,000,000 Hours MTBF
- 3 Years Warranty
- Meets Class B Radiated & Conducted EMI, with Margin

Notes:
1. *Consult factory for compliance information.

MODEL SELECTION

Model Number[2]	Volts	Rated Current	Output Power	Ripple & Noise[1]	Line Regulation	Load Regulation	Input Class/Termination	Output Termination
GB30S05K01	5.0V	4.0A	20.0W	75mV pk-pk	±1%	±2%	Class I (Grounded) input, 3-pin AMP/ Molex type connector Change "K" to "C" for Class II input	4-pin AMP/Molex type connector for "K" and "C" versions
GB30S07K01	7.5V	3.0A	22.5W	75mV pk-pk	±1%	±2%		
GB30S09K01	9.0V	3.0A	27.0W	90mV pk-pk	±1%	±2%		
GB30S12K01	12.0V	2.5A	30.0W	120mV pk-pk	±1%	±2%	Change "K" to "P" for PCB mount pins, Class I input Change "K" to "PCB mount pins", Class II input	PCB mount pins for "P" and "V" versions
GB30S15K01	15.0V	2.0A	30.0W	120mV pk-pk	±1%	±2%		
GB30S24K01	24.0V	1.33A	30.0W	240mV pk-pk	±1%	±2%		
GB30S48K01	48.0V	0.63A	30.0W	480mV pk-pk	±1%	±2%		

Notes:
1. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1μF & 47μF parallel capacitor.
2. Other output voltages available, consult factory.
3. All specifications are typical at 230VAC, full load, at 25°C ambient unless noted.

INPUT

Input Voltage and Frequency	100VAC–240VAC, ±10%, 47Hz–63Hz, 1Ø
Input Current	115VAC: 1.2A, 230VAC: 0.6A
Inrush Current	264VAC, cold start: will not exceed 40A peak
Input Fuses	3.15A, 250VAC fuse in both line and neutral
Earth Leakage Current (Input to Earth)	<500µA@264VAC, 60Hz, NC <1mA@264VAC, 60Hz, SFC
Earth Leakage Current (Output to Earth)	<100µA@264VAC, 60Hz, NC <500µA@264VAC, 60Hz, SFC
Efficiency	>88%, typical

Notes:
1. All specifications are typical at 230VAC input, full load, at 25°C ambient unless noted.

ISOLATION

Isolation	Input-Output: 4000VAC (2 MOPP) Input-Ground: 1500VAC (1 MOPP) Output-Ground: 1500VAC (1 MOPP)
Isolation Resistance	I/P-O/P, I/P-FG, O/P-FG: TBD

PROTECTION

Overtemperature Protection	Will shutdown upon an overtemperature condition, Auto-recovery
Overload Protection	130% to 160% of rated output current value, Hiccup mode
Short Circuit Protection	Hiccup mode
Overvoltage Protection	120% to 150% of nominal output voltage, Hiccup Mode

OUTPUT

Output Voltage	See models chart
Output Power	20W–30W continuous - See models chart for specific voltage model ratings
Turn On Time	<700mS
Hold-up Time	20mS/100VAC at full load
Transient Response	500µs resp. time for return to w/in 0.5% of final value for any 50% load step from 5% to 100% of rated load, Δi/Δt<0.2A/µs Max voltage deviation is ±3.5%
Total Load Regulation	±2%
Power Factor	0.9min., 230VAC, 80%–100% load vector, 25°C ambient

Notes:
1. All specifications are typical at 230VAC input, full load, at 25°C ambient unless noted.

RELIABILITY

MTBF	>1,000,000 hours, full load, 110VAC & 220VAC input, 25°C amb., per telcordia 332 issue 6, stress method
E-cap Life	>8 year life based on calculations at 115VAC/60Hz & 230VAC/50Hz, ambient 25°C at 24 hrs/day, 365 days/year, 6 power up cycles/day

SAFETY

ITE/Industrial Safety	EN/IEC/UL62368-1
Medical Safety	EN/IEC/UL60601-1 3rd Edition

ENVIRONMENT

Operating Temperature	-25°C ~ +70°C, see derating curve for operation above 40°C
Relative Humidity	5% to 90%, non-condensing
Weight	220 grams
Dimensions	1.9" x 4.0" x 1.0" 48.3mm x 101.6mm x 25.0mm
Storage Temperature	-40°C ~ +85°C
Vibration	Operating: 0.003g/Hz, 1.5 grams overall, 3 axes, 10 min/axis, 1Hz–500Hz Non-Oper.: random waveform, 3 mins/axis, 3 axes and Sine waveform, Vib. frequency/acceleration: 10Hz–500Hz/1g, sweep rate of 1 octave/minutes, Vibration time of 10 sweeps/axes, 3 axes
Shock	Operating: Half-sine, 20gpk, 10mS, 3 axes, 6 shocks total Non-Operating: Half-sine waveform, impact acceleration of 50G, pulse duration of 6mS, Number of shocks: 3 for each of the 3 axis
Cooling	Convection

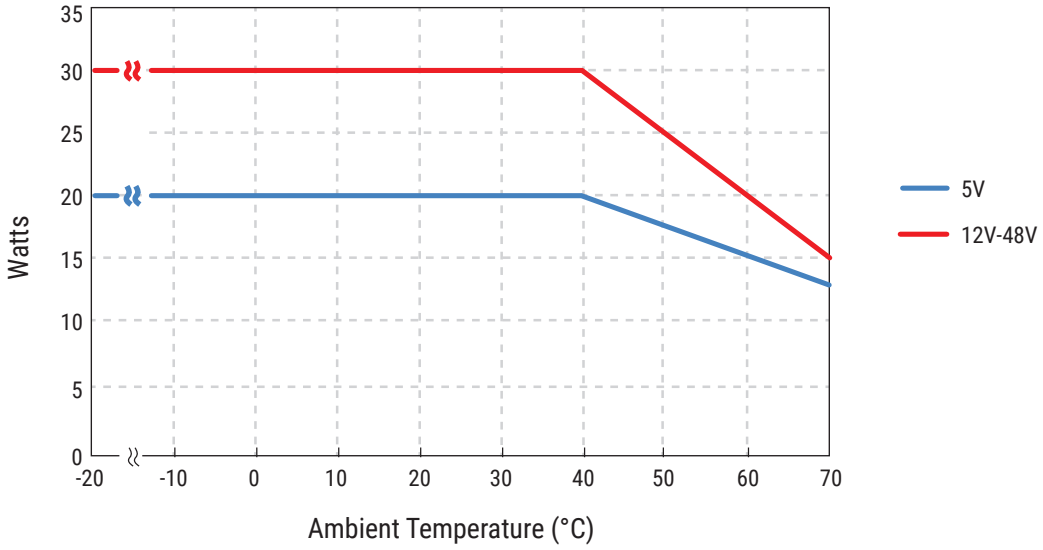
Notes:
1. Same dimensions for PCB & Pin Variants.

EMI/EMC COMPLIANCE

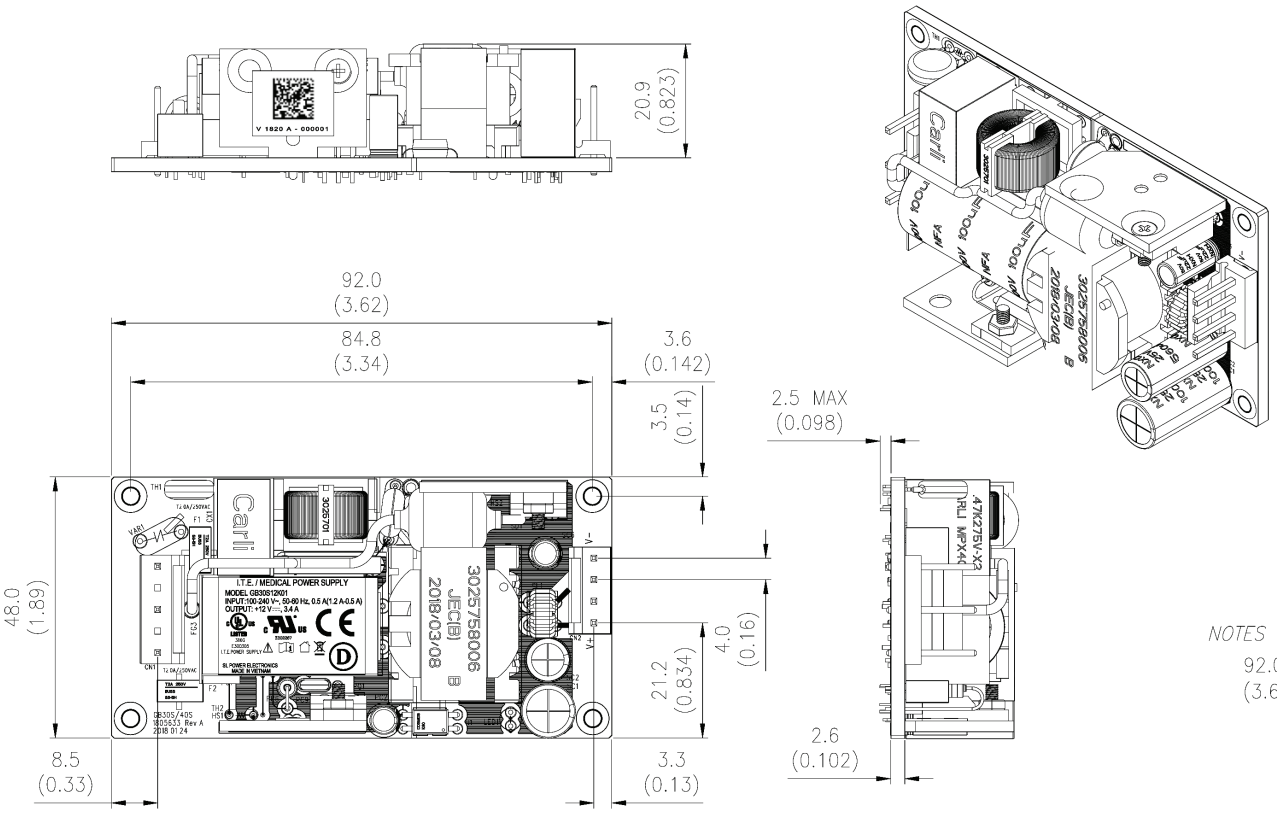
Conducted Emissions	EN55032, EN55011/CISPR11 Class B, FCC Part 15.107, Class B: 6db margin type, at 115VAC and 230VAC
Radiated Emissions	EN55032, EN55011/CISPR11 Class B, FCC Part 15.109, Class B: 3db margin type, at 115VAC and 230VAC
Electro-Static Discharge (ESD) Immunity on Power Ports	EN55024/IEC61000-4-2, Level 4: ±8kV contact, ±15kV air, Criteria A IEC60601-1-2 4th Edition, Table 4
Radiated RF EM Fields Susceptibility[3]	EN55022/EN61000-4-3, 10V/m, 80MHz–2.7GHz, 80% AM at 1kHz IEC60601-1-2 4th Edition, Table 4
Electrical Fast Transients (EFT)/Bursts	EN55024/IEC61000-4-4, Level 4, ±4.4kV, 100Khz rep rate, 40A, Criteria A IEC60601-1-2 4th Edition, Table 5
Surges, Line to Line (DM) and Line to Ground (CM)	EN55024/IEC61000-4-5, Level 4, ±2kV DM, ±4kV CM, Criteria A Surpasses IEC60601-1-2 4th Edition requirements
Conducted RF Immunity	EN55022/IEC61000-4-6, 3.6V/m – Level 4, (0.15MHz to 80MHz; and 12V/m) in ISM and amateur radio bands between 0.15MHz and 80MHz, 80% AM at 1KHz IEC60601-1-2 4th Edition, Table 5
Power Frequency Magnetic Field Immunity	EN55024/IEC1000-4-8, Level 4: 30 A/m, 50Hz/60Hz, IEC60601-1-2 4th Edition, Table 4
Voltage Dip Immunity	EN55024/IECEN61000-4-11: --100% dip for 10mS, at 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315°, 100% dip for 20mS, 0°, Criteria A --100% dip for 5000mS (250/300 cycles), Criteria B --60% dip for 100mS, Criteria B --30% dip for 500mS, Criteria A IEC60601-1-2 4th Edition, Table 5
Harmonic Current Emissions	EN55011/EN61000-3-2, Class A
Flicker Test	EN61000-3-3

Notes:
1. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.
2. All specifications are typical at nominal input, full load, at 25°C ambient unless noted. Consult factory for information regarding testing or for usage under special environments.

DERATING CURVE



MECHANICAL DRAWING



CONNECTOR AND TERMINATION INFORMATION

Input Connections				Ground	
Version	Connector Pinout	Ground	Connector Type/Part No.	Connector Pinout	Connector Type/Part No.
Open Frame: "K", "C"	Pin 1: AC LINE Pin 2: EMPTY Pin 3: AC NEUTRAL	0.125: ground tab (N/A on "C" versions)	Connector: TE/AMP P/N 640445-3 Mating Connector: TE/AMP P/N 640250-3, Pins= 770476-1	Pin 1: +Vout Pin 2: +Vout Pin 3: -Vout Pin 4: -Vout	Connector: TE/AMP P/N 640445-4 Mating Connector: TE/AMP P/N 640250-4, Pins= 770476-1
PCB Mount: "P", "V"	Pin 1: AC Line Pin 2: AC Neutral	PG: AC Ground (N/A on "V" version)	Pencom PI3207 or equivalent	Pin 4: +Vout Pin 5: +Vout Pin 6: -Vout Pin 7: -Vout	Pencom PI3207 or equivalent