

Picture for reference only

Features and Benefits

- 20W Open Frame and PCB-mount Power Supply
- 1.6" x 3.38" x 1.0" Package
- Universal Input 90-264Vac
- <0.1W no load input power
- Approved to CSA/EN/IEC/UL66368-1
- Approved to CSA/EN/IEC/UL60601-1, 3rd Edition
- Meets Class B Radiated & Conducted EMI with margin
- Meets Heavy Industrial and IEC60601-1-2 4th Edition Levels of EMC
- E-Cap life of >7 years
- >1,000,000 hours MTBF
- 3 year warranty



Description

The GB20 Series are designed for superior performance to minimize the effort required to integrate the power supplies into medical, industrial, and test & measurement applications. The GB20 Series AC-DC power supplies are approved to medical and industrial safety standards: EN/IEC/UL60601-1, 3rd edition (with 2 MOPP isolation), and EN/IEC/UL62368-1. The GB20 Series models are designed to meet the EMC requirements per UL/EN/IEC60601-1-2, 4th edition (Heavy Industrial levels of EN61000-4-x standards)*. The GB20 Series models will operate at universal input range of 90 to 264Vac over the wide temperature range of -20°C to +70°C, delivering full rated output power up to +40°C and applicable output power derating up to 70°C. These models are available in open frame and PCB mount versions for flexibility.

*Consult Factory for Table 9 compliance information.

Model Selection

Model Number ²	Output Volts	Rated Current	Output Power	Ripple & Noise ¹	Line Regulation	Load Regulation	Input Class/Termination	Output Termination
GB20S05K01	5.0V	3.0A	15W	75mV pk-pk			Class I (Grounded) input, 3-pin AMP/Molex type connector.	4-pin AMP/Molex type connector for "K" and "C" versions.
GB20S07K01	7.5V	2.0A	15W	75mV pk-pk				
GB20S09K01	9.0V	2.0A	18W	90mV pk-pk			Change "K" to "C" for class II input.	
GB20S12K01	12.0V	1.5A	18W	120mV pk-pk	±1%	±5%		
GB20S15K01	15.0V	1.2A	18W	120mV pk-pk			Change "K" to "P" for PCB mount pins, class I input	PCB mount pins for "P" and "V" versions
GB20S24K01	24.0V	0.8A	20W	240mV pk-pk				
GB20S48K01	48.0V	0.4A	20W	480mV pk-pk			Change "K" to "PCB mount pins, class II input	

Notes: 1. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uF & 47uF 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 Specifications

Input Voltage and Frequency	100-240Vac, ±10%, 47-63Hz, 1Ø	Efficiency	>88%, typical.
Input Current	115Vac: 0.5A, 230Vac: 0.2A	Power Factor	0.9, min., 230Vac, 80-100% load vector, 25°C ambient
Input Fuses	3.15A, 250Vac fuse in both line and neutral	Leakage Current (Input-Earth)	<500µA@264Vac, 60Hz, NC <1mA@264Vac, 60Hz, SFC
Inrush Current	264Vac, cold start: will not exceed 40A peak	Leakage Current (Output-Earth)	<100µA@264Vac, 60Hz, NC <500µA@264Vac, 60Hz, SFC

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

Output Specifications

Output Voltage	See Model Selection Table on pg 1.	Hold-up Time	20ms / 100VAC at full load
Output Power	15W-20W continuous – See model selection table for specific voltage model ratings.	Turn On Time	<700ms
Transient response	500 μ s resp.time for return to w/in 0.5% of final value for any 50% load step from 5% to 100% of rated load, $\Delta i/\Delta t < 0.2A/\mu s$. Max. voltage deviation: +/-3.5%.	Line/Load Regulation	See Model Selection Table on pg 1.

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

Environmental Specifications

Operating Temperature	-25 ~ +70°C, see derating curve for operation above 40°C	Cooling	Convection
Storage Temperature	-40 ~ +85°C	Relative Humidity	5% to 90%, non-condensing
Vibration	Operating: 0.003g/Hz, 1.5grms overall, 3 axes, 10 min/axis, 1-500Hz. Non-Oper.: random waveform, 3 minutes per axis, 3 axes and Sine waveform, Vib. frequency/acceleration: 10-500Hz/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 6 mS, Number of shocks: 3 for each of the three axis
Dimensions	41 x 86 x 25mm 1.6 x 3.38 x 1.0 inch	Weight	120g

Protection

Overvoltage Protection	120% to 150% of nominal output voltage. Hiccup Mode	Overtemperature Protection	Will shut down upon an overtemperature condition, auto recovery.
Short Circuit Protection	Hiccup Mode	Overload Protection	130% - 160% or rated output current value, hiccup mode

Isolation Specifications

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
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Safety & Reliability

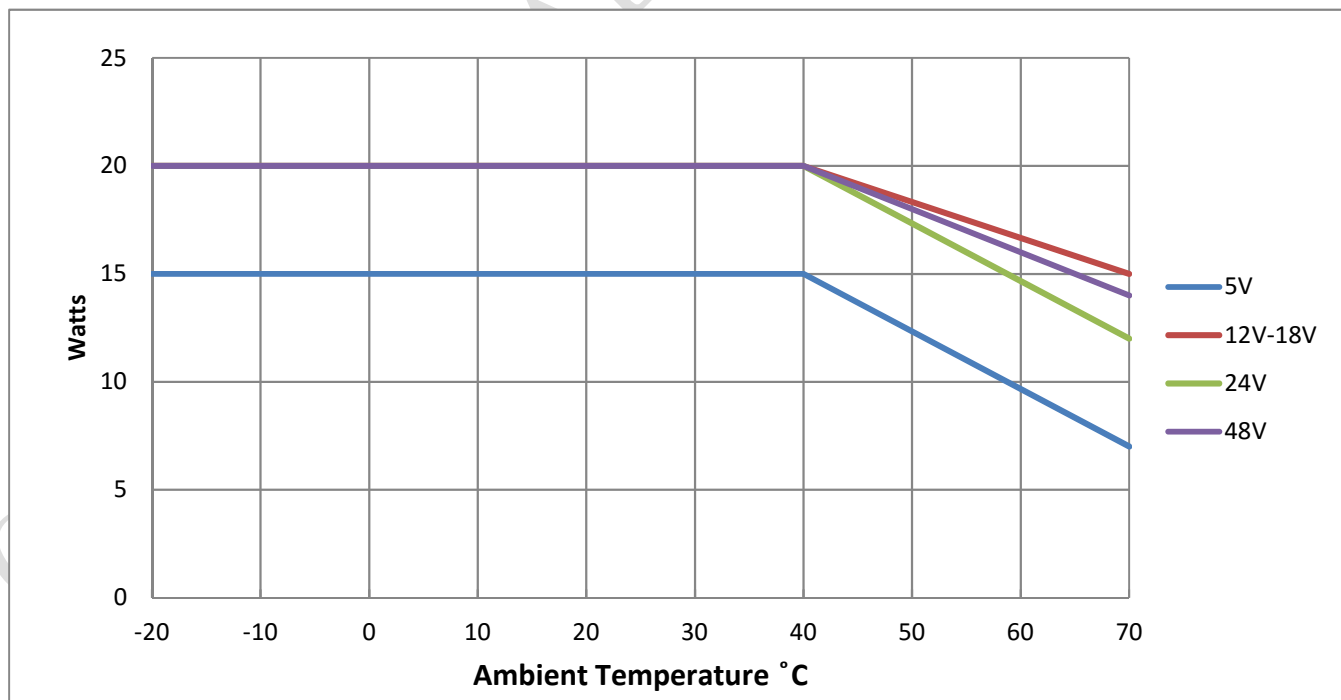
ITE/Industrial Safety	EN/IEC/UL62368-1	MTBF	>1,000,000 hours, full load, 110 & 220Vac input, 25°C amb., per Telcordia 332 Issue 6, Stress Method.
Medical Safety	EN/IEC/UL60601-1, 3rd Edition	E-Cap Life	>7 year life based on calculations at 115Vac/60Hz & 230Vac/50Hz, ambient 25°C at 24 hrs per day, 365 days/year, 6 power up cycles per day.

EMI/EMC Compliance

Conducted Emissions:	EN55032, EN55011/CISPR11 Class B, FCC Part 15.107, Class B: 6db margin typ, at 115 and 230Vac
Radiated Emissions:	EN55032, EN55011/CISPR11 Class B, FCC Part 15.109, Class B: 3db margin typ, at 115 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	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 (Diff Mode) and Line to GND (CMN Mode)	EN55024/IEC61000-4-5, Level 4, +/-2kV DM, +/-4kV CM, Criteria A Surpasses IEC60601-1-2, 4th Edition requirements.
Conducted Disturbances induced by RF Fields	EN55022/IEC61000-4-6, 3.6V/m – Level 4, 0.15 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
Rated Power frequency magnetic fields	EN55024/IEC1000-4-8, Level 4: 30 A/m, 50/60 Hz IEC60601-1-2, 4th Edition, Table 4
Voltage Interruptions, Dips, Sags & Surges	EN55024/IECEN61000-4-11: --100% dip for 10 mS, at 0, 45, 90, 135, 180, 225, 270 and 315 degrees, 100% dip for 20mS, 0 deg., 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 for or usage under special environments.

Derating Curve



Mechanical Drawing:

Outline Drawing coming soon!

Connector and Termination Information

Input Connections				Output Connections	
Version	Connector Pinout	Ground	Connector Type/Part No.	Connector Pinout	Connector Type/Part Number
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"	P1: AC Line P2: AC Neutral	PG: AC Ground (N/A on "V" version)	Pencom PI3207 or equivalent	P4: +Vout P5: +Vout P6: -Vout P7: -Vout	Pencom PI3207 or equivalent