



Zen series catalogue

The Modular Power Solution of Choice for Mission Critical Applications

- Highest Efficiency
- Highest Reliability
- Highest Power Density



Xgen Product Selector

The Xgen series of user configurable power supplies with its unique plug and play architecture allows system designers to define and build 'instant' custom power solutions with industry leading 17W/in³ power density and up to 90% efficiency.

Xgen powerPacs

The application specific 4 slot and 6 slot *powerPacs* provide up to 12 isolated DC outputs from 200W up to 1340W. The table below summarises the *powerPacs* by application and power level. Please refer to the specific product datasheets for full specifications.

| Application | Slots | 200W | 400W | 600W | 700W | 750W | 800W | 900W | 1000W | 1200W | 1340W |
|----------------------|--------|------|------|------|------|------|------|------|-------|-------|-------|
| Standard | 4 Slot | XLA | XLB | XLC | | XLD | | | | | |
| | 6 Slot | | XCA | | XCB | | | | XCC | XCD | XCE |
| Medical | 4 Slot | XMA | XMB | XMC | | XMD | | | | | |
| | 6 Slot | | XVA | | XVB | | | | XVC | XVD | XVE |
| Low Noise Standard | 4 Slot | XKA | XKB | XKC | | | | | | | |
| | 6 Slot | | XQA | | | | | XQB | | XQC | |
| Low Noise Medical | 4 Slot | XRA | XRB | XRC | | | | | | | |
| | 6 Slot | | XZA | | | | | XZB | | XZC | |
| Ultra Quiet Standard | 4 Slot | XTA | XTB | | | | | | | | |
| | 6 Slot | | XBA | XBB | | | XBC | | | | |
| Ultra Quiet Medical | 4 Slot | XNA | XNB | | | | | | | | |
| | 6 Slot | | XWA | XWB | | | XWC | | | | |
| Hi-Temp | 6 Slot | | XHA | XHB | | | | | | | |

Xgen powerMods

High Efficiency Plug and Play DC output modules to provide a wide range of DC output voltages from 1.0V up to 58.0V.

| MODEL | Vmin | | Vnom | Vmax | Imax | Watts |
|--------------|-------|------------|--------------|--------------|----------|------------|
| | Vtrim | Vpot | | | | |
| Xg1 | 1.0 | 1.5 | 2.5 | 3.6 | 50A | 125W |
| Xg2 | 1.5 | 3.2 | 5.0 | 6.0 | 40A | 200W |
| Xg3 | 4.0 | 6.0 | 12.0 | 15.0 | 20A | 240W |
| Xg4 | 8.0 | 12.0 | 24.0 | 30.0 | 10A | 240W |
| Xg5 | 8.0 | 28 | 48.0 | 58.0 | 6A | 288W |
| Xg7 | | 5.0 | 24.0 | 28.0 | 5A | 120W |
| Xg8 v1 v2 | | 5.0 5.0 | 24.0 24.0 | 28.0 28.0 | 3A 3A | 72W 72W |

Standard Xgen product options include: Conformal Coating, Low Acoustic Noise, Low Leakage Current, Extra Ruggedisation, Connector, Cabling & Mounting options, Thermal Signals and Reverse Fans. See Section 4.10 for more information.





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6 Slot

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|-------------------------------|----|----|
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About Excelsys

Section 1.1 About Excelsys

Your Global Partner for Mission Critical Modular Power Supplies

Excelsys Technologies brings over 20 years experience of modular power supply development and applications support in our revolutionary Xgen series of products. We serve original equipment manufacturers globally from our head office in Ireland, our additional sales offices in USA and China and our network of qualified and experienced distributors in over 30 countries worldwide. Together we have established Excelsys as the brand of choice for customers seeking the highest performing, most reliable and most cost efficient modular power solutions available in the market.

Serving Your Markets, Delivering Your Solutions...

Whatever your application, our dedicated teams of Sales and Applications Engineers are ready to assist you in defining and implementing the optimum modular power solution to meet your custom requirements. Some of the industries where Excelsys have demonstrated success include:



MEDICAL

Medical power supply design and manufacturing demands the highest safety and quality standards. The medically certified solutions in the Xgen Platform are the solutions of choice for variety of applications including:

Clinical Diagnostic Equipment • Medical Lasers • X-ray Machines • CT-Scanners • MRI Scanners Dialysis Equipment • Skin Treatment and Regeneration • Cryotherapy Equipment • Cancer Treatment Equipment



INDUSTRIAL

Excelsys Technologies designs and manufactures power supplies that meet the rigorous demands of the industrial sector. Our products are ideal for a variety of industrial, automation and test & measurement applications including:

Industrial Lasers • Optical Inspection Equipment • Electronic Microscopes • Printer & Paper Binder Equipment • Wafer Fabrication • High-End Camera Equipment • Industrial Cutting Equipment



COMMUNICATIONS

The Xgen range of modular power supplies meet the high reliability and stringent space requirements (1U) of the communications electronics sector and are used across a wide number of applications including: Wireless Telephony Equipment • Bulk Power System • Base Stations • Data Communications



HI-REL COTS

Excelsys designs and manufactures COTS (Commercial Off The Shelf) power supplies that meet the high reliability and often harsh operating environments of the military electronics industry and are ideal for use in a variety of applications including:

Radar Systems • Data Acquisition (Ground Based and Mobile) • Communications Equipment Test & Measurement Equipment

excelsys

Excelsys: Our commitment to you...

As a global supplier of modular power supplies, Excelsys combines the latest technology, management methods and a total customer service philosophy to provide the best performing and highest reliability solutions for your business.

Working closely with both our customers and channel partners we are committed to ensuring our products provide the lowest total cost of power supply ownership over the life of your system.



Overview

Section 1.2 Overview

The Xgen series brings OEM power supplies to a new paradigm, combining technical excellence with logistics simplicity to provide the world's most flexible, high efficiency, high reliability modular power supply. Xgen continues the Excelsys tradition of providing an instant, no compromise power solution for any application where a unique set of voltage and current requirements is needed.

The Xgen power supply is the most flexible modular power supply in the world. This power supply family ranges in power from 200W to 1340W and is used throughout various industries including Medical, Industrial, Communications and Military.

| | Need a custom power supply in a hurry? |
|-----------------------|---|
| CUSTOM POWER | Xgen is a true Plug & Play multiple-output power supply. Any one of more than 30 million configurations can be assembled anywhere, in under 5 minutes, from standard, volume-produced modules. This is the new-paradigm: a custom power supply available in 5 minutes from standard parts. |
| | Too much heat generated in your equipment? Difficult to maintain your equipment at the right temperature? |
| EFFICIENCY | Xgen has industry unrivalled efficiency, exceeding 90%. This means that less than half of the amount of waste heat is created in comparison to conventional multiple output power sources with efficiencies of 80% and lower. It also guarantees increased system reliability. |
| | Not enough space available in your equipment? |
| | Is space at a premium, making design and manufacture difficult and compromised? |
| SPACE | Xgen has industry unrivalled power density for a full functionality AC/DC power supply, at 17W/in ³ . You can get 1340W of multiple-output power source in 1U rack space. Its high power density minimises weight and maximises available space in your design for other components and general accessibility. |
| | Looking for a cost-effective long term solution for all your power supply requirements? |
| COST-EFFECTIVE | Xgen is configured from standard subassemblies that are manufactured in volume in our world class manufacturing facility. This allows Excelsys to provide you with all the benefits of Xgen at a world class competitive price. Contact Excelsys or one of our distributors for details. |
| | Worried about meeting all relevant standards - EMC, Safety, etc? |
| STANDARD APPROVALS | Xgen series models are fully compliant with all relevant standards. Standard parts meets the requirements EN60950, UL60950, CSA22.2, EN61000-3-x and EN61000-4-x. Additionally our medically approved range meet the requirements of EN60601 and UL60601 3rd edition for medical |

applications.





User Configurable 1U Size

Standard

PLUG & PLAY POWER next generation power solution

FEATURES & OPTIONS

- Ultra high efficiency, up to 89%
- Extra low profile: 1U height (40mm)
- Plug & Play Power allows fast custom configuration
- · Individual output control signals
- · All outputs fully floating
- · Series / Parallel of multiple outputs
- · Few electrolytic capacitors (all long life)
- Visual LED indicators
- 5V bias standby voltage provided
- SEMI F47 Compliant
- Standard Xgen product options include: Conformal Coating, Low Acoustic Noise, Low Leakage Current, Extra Ruggedisation, Connector, Cabling & Mounting options, Thermal Signals and Reverse Fans. See Section 4.10 for more information

APPLICATIONS INCLUDE

- · Industrial machines
- Test and measurement
- Automation equipment
- Printing
- Telecommunications

MECHANICAL SPECIFICATIONS



Genseries

The XL family of power supplies provides up to 750W in a slimline 1U package. Providing up to 8 isolated outputs, the XL family is the most flexible power supply in its class and brings affordable configurable power to the 200-750W market.

The slimline product boasts unrivalled power density saving valuable system space. Combined with ultra high efficiencies, the XL family provides system designers with flexible instant solutions that significantly shorten design-in time and simplify integration.

The XL family consists of 4 *powerPac* models in 200W, 400W, 600W and 750W power levels. Each *powerPac* model may be populated with up to 4 *powerMods* selected from the table of *powerMods* shown below.

All configurations carry full safety agency approvals, UL60950, EN60950 and are CE marked.

| | powerMo | ds | | | | | | powerF | acs |
|-----------------|---------|-------|------|------|------|------|-------|--------|-------|
| | MODEL | Vi | nin | Vnom | Vmax | Imax | Watts | | MODEL |
| ۱. | | Vtrim | Vpot | | | | | | XLA |
| , | Xg1 | 1.0 | 1.5 | 2.5 | 3.6 | 50A | 125W | | XLB |
| | Xg2 | 1.5 | 3.2 | 5.0 | 6.0 | 40A | 200W | XL | XLC |
| | Xg3 | 4.0 | 6.0 | 12.0 | 15.0 | 20A | 240W | | XLD |
| | Xg4 | 8.0 | 12.0 | 24.0 | 30.0 | 10A | 240W | | |
| | Xg5 | 8.0 | 28 | 48.0 | 58.0 | 6A | 288W | | |
| | Xg7 | | 5.0 | 24.0 | 28.0 | 5A | 120W | | |
| | Xg8 v1 | | 5.0 | 24.0 | 28.0 | 3A | 72W | | |
| | V2 | | 5.0 | 24.0 | 28.0 | 3A | 72W | | |

excelsys

-

Watts

200W

400W

600W

750W



Note: See diagrams on pages 34-37

Standard

SPECIFICATION applies to configured units consisting of powerMods inserted into the appropriate powerPac

| Tower Rating XLA 200W, XLE 400W, XLE 400W, XLE 750W Nover Rating XLA 200W, XLE 400W, XLE 400W, XLE 750W Negl Current XLA 85WC in 200W out XLB 85WC in 200W out XLD 85WC in 200W out Status 5hutdown Main 5hutdown XLD 250V 5x 20mm XLD XLD 250V 5x 20mm Yaranater Conditions/Description Min Norwer/Mod Power As per power/Mod table Electronic: See Section 4.6 0 Inine Regulation For 25% to 75% load change Voltage Deviation Trassient Response For 25% to 75% load change Voltage Deviation Trasser Section 4.0 Section 4.0 110 Devertore Protection Section 4.0 Section 4.0 110 Prom AC In and Global Enable / powerMod Enable XLA, XLB, XLC Prom AC In and Glob | nput Voltage Range | Universal Input 47-440Hz | 85 | | 264 | VAC |
|--|---------------------------------------|---|-----------|--------------------|--------------|--------|
| Power Rating NL-200W XLC-300W XLC 400W XLC 400W NLC 400W NLC Input Current XLA 85VAC in 400W out 6. 4. XLD 85VAC in 400W out 6. 7. Indervoltage Lockout Shutdown 65 7. Indervoltage Lockout Shutdown 65 7. YLB 250V 5 x 20mm 65 7. YLB 250V 5 x 20mm 67 7. YLLB 250V 5 x 20mm FF 7. 7. YLB 250V 5 7.5% load change 0 0 1.0 0 Load Regulation For 25% to 75% load change 0 0 0 0 | | | | | 380 | VDC |
| See Section 4.11 for line voltage deratings | Power Rating | XLA:200W, XLB:400W, XLC:600W, XLD:750W | 120 | | 000 | |
| XLB BSVAC in 400W out F. XLC BSVAC in 400W out 7. mush Current 230VAC, 25°C C 7. Undervoltage Lockout Shutdkown 65 Fusing XLA 250V 5×20mm 65 XLB 250V 5×20mm 65 7. VIDPUT Conditions/Decription Min N Parameted Conditions/Decription Min N PowerMod Power As per powerMod table 6 6 UIDPUT Conditions/Decription Min N PowerMod Power As per powerMod table 0 1 Line Regulation For 25% to 75% load change 0 0 Cross Regulation For 25% to 75% load change 0 10 Overcurent Protection 1st level: Vset Tracking, 2nd level: Vmax (Latching) 110 Overcurent Protection 1st level: Vset Tracking, 2nd level: Vmax (Latching) 110 Overcurent Protection 1st level: Vset Tracking, 2nd level: Vmax (Latching) 110 Overcurent Protection | - | See Section 4.11 for line voltage deratings | | | | |
| XLC 85VAC in 4528V out 7. Inrush Current 230VAC, 25°C | nput Current XLA | | | 4.0 | | A |
| XLD 85W/CL in 525W out 7 Undervoltage Lockout Shutdown 65 7 Fusing XLA 250V 5 x 20mm 65 XLB 250V 5 x 20mm Ff XLC, XLD 250V 5 x 20mm Ff OUTPUT 0 7 DowerMod Power As per <i>jowerMod</i> table 1 Darameter Conditions/Description Min N Durbut Adjustment Range Manuel:< Multi-tum potentiometer. As per <i>jowerMod</i> table 0 Lice Regulation For ±10% change from nominal line 0 0 Load Regulation For ±25% to 75% load change 0 0 Overvoltage Protection Stratight line with hiccup activation at <30% of Vnom | XLB | 85VAC in 400W out | | 6.0 | | A |
| Inrush Current 230/VAC, 25°C Important Cockout Field Fusing XLA 250V 5 x 20mm Field XLB 250V 5 x 20mm Field Field XLC, XLD 250V 5 x 20mm Field Field OUTPUT 250V 5 x 20mm Field Field Output Adjustment Range Manuai: Multi-turn potentiometer: As per powerMod table Electronic: See Section 4.6 0 Line Regulation For 25% to 75% load change Voltage Deviation 0 0 Cross Regulation For 25% to 75% load change Voltage Deviation 110 0 Overcurent Protection 1st level: Vset Tracking, 2nd level: Vmax (Latching) 110 0 Overcurent Protection Stradigt Time or compensation. (except Xg7, Xg8) 0 110 0 Output doubtat output voltages at full load XLA, XLB, XLCXLD 20/15 500 / 500 500 / 500 500 / 500 500 / 500 500 / 500 500 / 500 500 / 500 500 / 500 500 / 500 500 / 500 500 / 500 500 / 500 500 / 500 500 / 500 | | | | 7.5 | | A |
| Undervoltage Lockout Shutdown 65 Fusing XLB 250V 5 x 20mm Ff XLB 250V 5 x 20mm Ff OUTPUT 250V 5 x 20mm Ff OUTPUT Conditions/Description Min N Parameter Conditions/Description Min N Dowerflod Power As per powerflod table 0 0 Line Regulation For ±10% change from nominal line 0 0 Load Regulation For ±25% to 75% load change 0 0 Cross Regulation For 25% to 75% load change Voltage Deviation 0 0 Gress Regulation For 25% to 75% load change Voltage Deviation 0 0 Gress Regulation Transint Response For 25% to 75% load change Voltage Deviation 0 0 Gress Regulation Statewit State Tacking, 2 and level: Vmax (Latching) 110 0 Overvoltage Protection Straight line with hiccup activation at <30% of Vnom | XLD | 85VAC in 525W out | | 7.5 | | А |
| Fusing XLA 250V 5 x 20mm Ff XLB ZSOV 5 x 20mm Ff XLC, XLD ZSOV 5 x 20mm Ff OUTPUT Conditions/Description Min Ni powerMod Power As per powerMod table 0 Output Adjustment Range Manuai: Multi-turn potentiometer. As per powerMod table 0 Line Regulation For 10% change from nominal line 0 Load Regulation For 25% to 75% load change Voltage Deviation 0 Ripple and Noise 20MHz 100mV or 1.0% pk-pk 10 Overcurrent Protection Streight Time 110 Overcurrent Protection Streight Time with hiccup activation at <30% of Vnom | nrush Current | 230VAC, 25°C | | | 50 | А |
| XLB 250V 5 x 20mm Ff OUTPUT 250V 5 x 20mm Ff Parameter Conditions/Description Min N powerMod Power As per powerMod table Immune Conditions/Description Min N Uniput Adjustment Range Marual: Multi-turp otentiometer. As per powerMod table Immune Conditions/Description 0 Line Regulation For ±10% change from nominal line 0 0 0 Load Regulation For ±25% to 75% load change Description 110 0 Coress Regulation Setting Time Setting Time 110 0 Overvoltage Protection 1st level: Vset Tracking, 2nd level: Vmax (Latching) 110 0 Overvoltage Protection Setep ont As End ong ontegnasation. (except Xg7, Xg8) 110 0 Output to Statistion Guipti to Cutput / Output to Chassis 500 / 500 500 / 500 500 / 500 500 / 500 500 / 500 500 / 500 500 / 500 500 / 500 500 / 500 500 / 500 500 / 500 500 / 500 500 / 500 500 / 5 | Jndervoltage Lockout | Shutdown | 65 | | 74 | VAC |
| XLC, XLD 250V 5 x 20mm Fr OUTPUT Output Min Parameter Conditions/Description Min powerMod Power As per powerMod table Min Output Adjustment Range Manual: Multi-turn potentiometer. As per powerMod table 0 Untput Adjustment Range Manual: Multi-turn potentiometer. As per powerMod table 0 Line Regulation For 25% to 75% load change 0 Cross Regulation For 25% to 75% load change 0 Transient Response For 25% to 75% load change Voltage Deviation Setting Time 110 Overcourset Protection Straight Ine with Niccup Acutation at <30% of Vnom | using XLA | 250V 5 x 20mm | | F5A HRC | | |
| OUTPUT Conditions/Description Min Ni Parameter Conduitons/Description Min Ni Output Adjustment Range Manual: Multi-turn potentiometer. As per power/Mod table 0 Line Regulation For 10% change from nominal line 0 0 Load Regulation For 25% to 75% toad change 0 0 Cross Regulation For 25% to 75% toad change 0 0 Overvoltage Protection 1st level: Viset Tracking, 2 rad level: Wmax (Latching) 110 0 Overvoltage Protection 1st level: Viset Tracking, 2 rad level: Wmax (Latching) 110 0 Overvoltage Protection Set Section 4.6 Common except Xg7, Xg8) 0 Overvoltage Protection Set Section 4.6 Common except Xg7, Xg8) 0 Overshoot From AC In and Global Enable / powerMod Enable XLD 20/15 0 Rise Time Montonic Unput to Output / Output 1 0.000 100 Rise Time For nominal output voltages at full load XLA, XLB, XLC/XLD 20/15 0 Output to Output Input to Chassis < | XLB | 250V 5 x 20mm | | F6.3A HRC | | |
| Parameter Conditions/Description Min N powerMod Power As per powerMod table Manuai: Multi-fur potentiometer. As per powerMod table Minimum Load Electronic: See Section 4.6 0 0 Line Regulation For 25% to 75% load change 0 Transient Response For 25% to 75% load change Voltage Deviation Setting Time 0 Ripple and Noise 20MHz 100mV or 1.0% pc-pk 0 Overcurrent Protection Straight Ine with hiccup activation at <30% of Norm | XLC, XLD | 250V 5 x 20mm | | F8A HRC | | |
| Parameter Condition/Description Min Nin Nin powerMod Power As per powerMod table Output Adjustment Range Manuai: Multi-fur potentiometer. As per powerMod table Minimum Load 0 0 Line Regulation For 25% to 75% load change 0 Cross Regulation For 25% to 75% load change Voltage Deviation Setting Time Ripple and Noise 20MHz 100mV or 1.0% pc-pk Overcurrent Protection Straight ine with hiccup activation at <30% of Vnom | | | | | | |
| powerMod Power As per powerMod table Image: Output Adjustment Range Manual: Multi-tum potentimeter. As per powerMod table 0 Line Regulation For ±10% change from nominal line 0 Line Regulation For ±25% to 75% load change 0 Transient Response For 25% to 75% load change Voltage Deviation 0 Setting Time 10 0 Warvoltage Potoction Stating Time 10 Overvoltage Potoction 110 Setting Time 110 Overvoltage Potoction Straight line with hiccup activation at <30% of Vnom | | Conditions/Description | Min | Nom | Max | Units |
| Output Adjustment Range Manual: Multi-turn potentiometer. As per power/Mod table Electronic: See Section 4.6 0 Line Regulation For ±10% change from nominal line 0 Cross Regulation For 25% to 75% load change 0 Transient Response For 25% to 75% load change Voltage Deviation 0 Ripple and Noise 20MHz 100mV or 1.0% pc/pk 110 Overcurrent Protection Straight line with hicup activation at <30% of Ynom | | | WIIII | Nom | INIAA | Units |
| Electronic: See Section 4.6 0 Line Regulation For ±10% change from nominal line 0 Load Regulation For ±10% change from nominal line 0 Cross Regulation For 25% to 75% load change 0 Transient Response For 25% to 75% load change Voltage Deviation 0 Ripple and Noise 20MHz 100mV or 1.0% pk-pk 0 Overvoltage Protection Straight line with hiccup activation at <30% of Vnom | | | | | | |
| Minimum Load 0 Line Regulation For ±10% change from nominal line 0 Load Regulation For 25% to 75% load change 0 Transient Response For 25% to 75% load change Voltage Deviation Setting Time 0 Ripple and Noise 20MHz 100mV or 1.0% pkpk 0 Overcourset Protection Straight line with hickory activation at <30% of Ynom | Jutput Adjustment Range | | | | | |
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| Lead Regulation For 25% to 75% load change Image: Cross Regulation Transient Response For 25% to 75% load change Voltage Deviation Setting Time Ripple and Noise 20MHz 100mV or 1.0% pk-pk Setting Time Overcurrent Protection 1st level: Vset Tracking. 2nd level: Ymax (Latching) 110 Overcurrent Protection Set Section 4.6 Remote Sense Max. line drop compensation. (except Xg7, Xg8) Image: Cross Regulation Overshoot From AC In and Global Enable / powerMod Enable XLA, XLB, XLC From AC In and Global Enable / powerMod Enable XLD Protection Rise Time Monotonic For onminal output voltages at full load XLA, XLB, XLC/XLD 20/15 Output Isolation Output to Output / Output to Chassis 500 / 500 GENERAL 3000 Input to Output 3000 Input to Output Output to Chassis 1500 85 Efficiency 230VAC, 69Hz, 25'C Stafety Agency Approvals 58 Eakage Current 250VAC, 60Hz, 25'C Stafety Agency Approvals 58 Bias Supply Alwage on. Current 250mA. 500mA option available 4.8 5. Parameter Stafety Agency Aprovals Stafety Agency ApowerMad | | For ±10% change from nominal line | | U | ±0.1 | A % |
| Cross Regulation For 25% to 75% load change Voltage Deviation Settling Time Ripple and Noise 20MHz 100mV or 1.0% pk-pk. Image: Comparison of the level: Vnax (Latching) 110 Overvoltage Protection Straight line with hiccup activation at <30% of Vnom | <u> </u> | | | | | % |
| Transient Response For 25% to 75% load charge Voltage Deviation Setting Time Image: Setting Time Ripple and Noise 20MHz 100mV or 1.0% pk-pk Setting Time Image: Setting Time Overcurrent Protection 1st level: Vest Tracking. 2nd level: Vmax (Latching) 110 Overcurrent Protection Straight line with hickup activation at <30% of Vnom | | r or 20% to 70% load change | | | ±0.2 ±0.2 | % |
| Settling Time Settling Time Ripple and Noise 20MHz 100mV or 1.0% pk-pk Image: Comparison of the set | | For 250/ to 750/ load change Valters Deviction | | | | |
| Ripple and Noise 20MHz 100mV or 1.0% pk-pk Intervent of the second | iransient kesponse | | | | 10 250 | % |
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| Overcurrent Protection Straight line with hiccup activation at <30% of Vnom See Section 4.6 110 Remote Sense Max. line drop compensation. (except Xg7, Xg8) 110 Overshoot From AC In and Global Enable / powerMod Enable XLA, XLB, XLC 110 Imme Monotonic 20/15 Hold-up Time Forn AC In and Global Enable / powerMod Enable XLD 20/15 Output Isolation Output to Output / Output to Chassis 500 / 500 GENERAL 20/15 20/15 Parameter Conditions/Description Min N Isolation Voltage Input to Output 20/16 20/15 Efficiency 230/AC, 750W @ 24V 86 3000 Safety Agency Approvals EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 26 Leakage Current 250/AC, 60Hz, 25°C 20 20 20 20 Signals See Section 4.9 See Section 4.9 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 | | | 110 | | 125 | % |
| See Section 4.6 Max. line drop compensation. (except Xg7, Xg8) Overshoot Turn-on Delay From AC in and Global Enable / powerMod Enable XLA, XLB, XLC From AC in and Global Enable / powerMod Enable XLD Rise Time Monotonic Monotonic Hold-up Time For nominal output voltages at full load XLA, XLB, XLC/XLD 20/15 Output Isolation Output to Output 10 Output to Chassis 500 / 500 GENERAL Min Ni Parameter Conditions/Description Min Input to Output 230/AC, 750W @ 24V 3000 Safety Agency Approvals EN80950, UL60950, CSA22.2 No.950 UL File No. E181875 Leakage Current 250VAC, 60Hz, 25°C 5 Signals See Section 4.9 5 Blas Supply Always on. Current 250mA. 500mA option available 4.8 5 Failures per million hours at 40°C and full load powerMod 5 EMC See Section 4.12. powerPac excludes fans powerMad Parameter Standard Leakage Leakage Emissions Conducted EN50011, EN55022, FCC Leakage Leakage Fast Transients-Burest EN61000-4-2 <td></td> <td></td> <td></td> <td></td> <td>125</td> <td>%</td> | | | | | 125 | % |
| Remote Sense Max. line drop compensation. (except Xg7, Xg8) Image: Compensation (except Xg7, Xg8) Overshoot From AC In and Global Enable / powerMod Enable XLA, XLB, XLC From AC In and Global Enable / powerMod Enable XLD Rise Time Monotonic Image: Compensation (except Xg7, Xg8) Image: Compensation (except Xg7, Xg8) Hold-up Time For nominal output voltages at full load XLA, XLB, XLC/XLD 20/15 Output Isolation Output to Output / Output to Chassis 500 / 500 GENERAL Imput to Output Output to Chassis 500 / 500 Parameter Conditions/Description Min N Isolation Voltage Input to Output 200/42 86 Safety Agency Approvals EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 8 Leakage Current 250VAC, 750W (@ 24V 58 58 58 Signals See Section 4.9 See Section 4.9 58 58 58 Bias Supply Always on. Current 250mA. 500mA option available 4.8 5. Reliability Failures per million hours at 40°C can full load powerMod See Section 4.12. powerPac excludes fans powerPac 58 EMC Immunity Imamonic Distortio | overcurrent Protection | | IIU | | 120 | 70 |
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| Rise Time Monotonic Per nominal output voltages at full load XLA, XLB, XLC/XLD 20/15 Hold-up Time For nominal output to Chassis 500 / 500 GENERAL Output to Output to Chassis 500 / 500 Parameter Conditions/Description Min Ni Isolation Voltage Input to Output 3000 1500 Efficiency 230VAC, 750W @ 24V 85 85 Safety Agency Approvals EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 85 Leakage Current 250VAC, 60Hz, 25°C 6 6 Signals See Section 4.9 85 5 Bias Supply Always on. Current 250mA. 500mA option available 4.8 5 Reliability Failures per million hours at 0°C and full load power/Pac 6 EMC Conducted EN55011, EN55022, FCC Left Harmonic Distortion EN61000-3-2 Class A C/ C/ Flicker & Fluctuation EN61000-4-3 Left C/ Harmonic Distortion EN61000-4-3 Left C/ Fast Transients-Burst EN61000-4-2 Radiated Immunity EN61000-4-3 | ium-on Delay | | | | | ms |
| Hold-up Time For nominal output voltages at full load XLA, XLB, XLC/XLD 20/15 Output Isolation Output 0 Output / Output to Chassis 500 / 500 GENERAL Input to Output / Output to Chassis 500 / 500 Generation Input to Output / Output to Chassis 1000 Efficiency 230/AC, 750 W@ 24V 3000 Safety Agency Approvals EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 Leakage Current 250/AC, 60/E, 25°C 5 Signals See Section 4.9 5 Bias Supply Always on. Current 250mA. 500mA option available 4.8 5 Reliability Failures per million hours at 40°C and full load powerMod 5 5 Conducted EN55011, EN55022, FCC Loc Loc Radiated EN61000-3-2 CC Loc Harmonic Distortion EN61000-3-2 CC Loc Fast Transients-Burst EN61000-4-2 Loc Co Input Line Surges EN61000-4-4 Loc Loc Fast Transients-Burst EN61000-4-4 Loc Loc Fast Transients-Burst EN61000-4-4 Loc < | | | | | 1000 / 6 | ms |
| Output Isolation Output to Output / Output to Chassis 500 / 500 GENERAL Min Min Ni Parameter Conditions/Description Min Ni Isolation Voltage Input to Output 3000 1500 85 Efficiency 230VAC, 750W @ 24V 85 95 85 85 9 | | | 00/45 | | 5 | ms |
| GENERAL Min Min Parameter Conditions/Description Min Ni Isolation Voltage Input to Output 3000 1500 Efficiency 230VAC, 750W @ 24V 88 Safety Agency Approvals EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 5 Leakage Current 250VAC, 60Hz, 25°C 5 5 Signals See Section 4.9 5 5 Bias Supply Always on. Current 250mA. 500mA option available 4.8 5 Reliability Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac 5 EMC 1000 1000-3-2 Class A 1000 1000 Parameter Standard 100 1000 1000-3-3 Emissions 1000-4-2 1000-4-2 1000 Conducted EN55011, EN55022, FCC 1000 1000 Harmonic Distortion EN61000-4-3 1000 1000 Electrostatic Discharge EN61000-4-3 1000 1000 Electrostatic Discharge EN61000-4-4 1000 1000 Level 3 | • | | | | | ms |
| Parameter Conditions/Description Min Nu Isolation Voltage Input to Output 3000 3000 Input to Chassis 1500 1500 1500 Efficiency 230VAC, 750W @ 24V 88 5 Safety Agency Approvals EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 5 Leakage Current 250VAC, 60Hz, 25°C 5 5 Signals See Section 4.9 5 5 Reliability Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac 5 EMC 5 5 5 5 Parameter Standard Leakage Leak | Jutput Isolation | Output to Output / Output to Chassis | 500 / 500 | | | VDC |
| Isolation Voltage Input to Output Input to Chassis 3000 Efficiency 230VAC, 750W @ 24V 85 Safety Agency Approvals EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 6 Leakage Current 250VAC, 60Hz, 25°C 5 5 6 Signals See Section 4.9 85 5 6 Bias Supply Always on. Current 250mA. 500mA option available 4.8 5 Reliability Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac 6 EMC Conducted EN55011, EN55022, FCC Leater and the exclusion of the | GENERAL | | | | | |
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| Efficiency 230VAC, 750W @ 24V 85 Safety Agency Approvals EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 65 Leakage Current 250VAC, 60Hz, 25°C 64 65 Signals See Section 4.9 68 68 Bias Supply Always on. Current 250mA. 500mA option available 4.8 5. Reliability Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac 66 EMC 66 66 66 66 Parameter Standard 16 16 Ensions 66 66 16 16 Conducted EN55011, EN55022, FCC 16 16 Radiated EN61000-3-2 Class A 16 16 Flicker & Fluctuation EN61000-3-3 16 16 Immunity EN61000-4-2 16 16 Fast Transients-Burst EN61000-4-3 16 16 Fast Transients-Burst EN61000-4-4 16 16 Lowel 3 Input Line Surges EN61000-4-6 16 Voltage Dips EN61000-4-6 <td< td=""><td>solution voltage</td><td></td><td></td><td></td><td></td><td>VAC</td></td<> | solution voltage | | | | | VAC |
| Safety Agency Approvals EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 Leakage Current 250VAC, 60Hz, 25°C Image: Construct of the second | fficiency | | 1000 | 89 | | % |
| Leakage Current 250VAC, 60Hz, 25°C Signals See Section 4.9 Bias Supply Always on. Current 250mA. 500mA option available 4.8 Bias Supply Always on. Current 250mA. 500mA option available 4.8 Bias Supply Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac 5 EMC EMC Conducted EN55011, EN55022, FCC Lec Radiated EN55011, EN55022, FCC Lec Lec Harmonic Distortion EN61000-3-2 Class A Cod Cod Flicker & Fluctuation EN61000-3-3 Cod Cod Immunity EN61000-4-2 Lec Radiated Immunity Lec Fast Transients-Burst EN61000-4-2 Lec Lec Input Line Surges EN61000-4-5 Lec Cod Conducted Immunity EN61000-4-5 Lec Cod Voltage Dips EN61000-4-5 Lec Cod ENVIRONMENTAL Min Min Min Parameter Conditions/Description Min Ni Operating Temperature -20 Storage Temperature </td <td></td> <td></td> <td></td> <td>03</td> <td></td> <td>/0</td> | | | | 03 | | /0 |
| Signals See Section 4.9 Bias Supply Always on. Current 250mA. 500mA option available 4.8 5. Reliability Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Image: Comparison of the section of the sectin of the section of the section of the sectin of the se | | | | | 1.5 | mA |
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| See Section 4.12. powerPac excludes fans powerPac EMC Image: Conducted | | | 4.8 | 5.0 | 5.2 | VDC |
| EMC Late Parameter Standard Late Emissions Conducted EN55011, EN55022, FCC Late Radiated EN55011, EN55022, FCC Late Harmonic Distortion EN61000-3-2 Class A CC Flicker & Fluctuation EN61000-3-3 CC Immunity Electrostatic Discharge EN61000-4-2 Radiated Immunity EN61000-4-3 Late Fast Transients-Burst EN61000-4-3 Late Input Line Surges EN61000-4-5 Late Conducted Immunity EN61000-4-6 Late Voltage Dips EN61000-4-11, SEMI F47 compliant. See note 8. Cate ENVIRONMENTAL Parameter Conditions/Description Min Operating Temperature -20 Storage Temperature -40 | renability | | | | 0.958 | fpmh |
| Parameter Standard Loc Emissions Conducted EN55011, EN55022, FCC Loc Radiated EN55011, EN55022, FCC Loc Loc Harmonic Distortion EN61000-3-2 Class A CC Loc Flicker & Fluctuation EN61000-3-2 Class A CC Conducted Electrostatic Discharge EN61000-4-2 Loc Loc Radiated Immunity EN61000-4-3 Loc Loc Fast Transients-Burst EN61000-4-3 Loc Loc Input Line Surges EN61000-4-4 Loc Conducted Immunity EN61000-4-5 Conducted Immunity EN61000-4-5 Loc Conducted Immunity Loc Parameter Conditions/Description Min Na Operating Temperature -20 Storage Temperature -40 | | See Section 4.12. powerPac excludes tans powerPac | | | 0.92 | fpmh |
| Emissions Image: Conducted EN55011, EN55022, FCC Let an | | | | | | |
| Emissions Image: Conducted EN55011, EN55022, FCC Let an | Parameter | Standard | | Level | | Units |
| ConductedEN55011, EN55022, FCCLetRadiatedEN55011, EN55022, FCCLetHarmonic DistortionEN61000-3-2 Class ACCFlicker & FluctuationEN61000-3-3CCImmunityEN61000-4-2LetRadiated ImmunityEN61000-4-2LetFast Transients-BurstEN61000-4-3LetInput Line SurgesEN61000-4-4LetConducted ImmunityEN61000-4-5LetParameterConditions/DescriptionMinOperating Temperature-20-20Storage TemperatureSee Section 4.11 for full temperature deratings-40 | | | | | | |
| Radiated EN55011, EN55022, FCC Lee Harmonic Distortion EN61000-3-2 Class A Cd Flicker & Fluctuation EN61000-3-3 Cd Immunity Electrostatic Discharge EN61000-4-2 Lee Radiated Immunity EN61000-4-3 Lee Fast Transients-Burst EN61000-4-4 Level 3 Input Line Surges EN61000-4-5 Lee Conducted Immunity EN61000-4-6 Lee Voltage Dips EN61000-4-11, SEMI F47 compliant. See note 8. Cd ENVIRONMENTAL Parameter Conditions/Description Min Operating Temperature -20 Storage Temperature -40 | | EN55011, EN55022, ECC | | Level B | | |
| Harmonic Distortion EN61000-3-2 Class A Cd Flicker & Fluctuation EN61000-3-3 Cd Immunity Electrostatic Discharge EN61000-4-2 Lde Radiated Immunity EN61000-4-3 Lde Fast Transients-Burst EN61000-4-4 Level 3 Input Line Surges EN61000-4-5 Lde Conducted Immunity EN61000-4-6 Lde Voltage Dips EN61000-4-11, SEMI F47 compliant. See note 8. Cd ENVIRONMENTAL Parameter Conditions/Description Min Operating Temperature -20 Storage Temperature -40 | | | | Level B | | - |
| Flicker & Fluctuation EN61000-3-3 Cd Immunity EN61000-4-2 Lee Radiated Immunity EN61000-4-3 Lee Fast Transients-Burst EN61000-4-3 Lee Input Line Surges EN61000-4-5 Lee Conducted Immunity EN61000-4-6 Lee Voltage Dips EN61000-4-11, SEMI F47 compliant. See note 8. Cd ENVIRONMENTAL Parameter Conditions/Description Min Operating Temperature -20 Storage Temperature -40 | | | | Compliant | | |
| Immunity EN61000-4-2 Lee Radiated Immunity EN61000-4-3 Lee Fast Transients-Burst EN61000-4-4 Lee Level 3 Input Line Surges EN61000-4-5 Lee Conducted Immunity EN61000-4-6 Lee EN61000-4-6 Voltage Dips EN61000-4-11, SEMI F47 compliant. See note 8. Cc ENVIRONMENTAL Parameter Conditions/Description Min Operating Temperature -20 Storage Temperature -40 Derating See Section 4.11 for full temperature deratings -40 | | | | Compliant | | |
| Electrostatic Discharge EN61000-4-2 Lec Radiated Immunity EN61000-4-3 Lec Fast Transients-Burst EN61000-4-4 Level 3 Input Line Surges EN61000-4-5 Lec Conducted Immunity EN61000-4-6 Lec Voltage Dips EN61000-4-11, SEMI F47 compliant. See note 8. Cod ENVIRONMENTAL Parameter Conditions/Description Min Operating Temperature -20 Storage Temperature -40 Derating See Section 4.11 for full temperature deratings 40 | | | | Compliant | | |
| Radiated Immunity EN61000-4-3 Let Fast Transients-Burst EN61000-4-4 Level 3 Imput Line Surges EN61000-4-5 Input Line Surges EN61000-4-5 Let Conducted Immunity EN61000-4-6 Let Voltage Dips EN61000-4-11, SEMI F47 compliant. See note 8. Cod ENVIRONMENTAL Conditions/Description Min Parameter Conditions/Description -20 Storage Temperature -40 -40 | · · · · · · · · · · · · · · · · · · · | EN61000-4-2 | | Level 2 | | |
| Fast Transients-Burst EN61000-4-4 Level 3 Input Line Surges EN61000-4-5 Lee Conducted Immunity EN61000-4-6 Lee Voltage Dips EN61000-4-11, SEMI F47 compliant. See note 8. Cod ENVIRONMENTAL Parameter Conditions/Description Min Operating Temperature -20 Storage Temperature -40 Derating See Section 4.11 for full temperature deratings -40 | | | | Level 2 Level 3 | | |
| Level 3 Level 3 Input Line Surges EN61000-4-5 Let Conducted Immunity EN61000-4-6 Let Voltage Dips EN61000-4-11, SEMI F47 compliant. See note 8. Conditions/Description ENVIRONMENTAL Parameter Conditions/Description Min Operating Temperature -20 Storage Temperature -40 Derating See Section 4.11 for full temperature deratings -40 | | | | Level J | <u> </u> | |
| Input Line Surges EN61000-4-5 Let Conducted Immunity EN61000-4-6 Let Voltage Dips EN61000-4-11, SEMI F47 compliant. See note 8. Conditions/Description ENVIRONMENTAL Parameter Conditions/Description Min Operating Temperature -20 Storage Temperature -40 Derating See Section 4.11 for full temperature deratings -40 | ust manaients Duist | | | | | |
| Conducted Immunity EN61000-4-6 Let Voltage Dips EN61000-4-11, SEMI F47 compliant. See note 8. Compliant. See note 8. ENVIRONMENTAL Parameter Conditions/Description Min Operating Temperature -20 Storage Temperature -40 Derating See Section 4.11 for full temperature deratings -40 | nnut Line Surges | | | Level 3 | | |
| Voltage Dips EN61000-4-11, SEMI F47 compliant. See note 8. Complexity ENVIRONMENTAL Min Min Parameter Conditions/Description Min Notage 1 Operating Temperature -20 -20 Storage Temperature -40 -40 | | | | Level 3 Level 3 | | |
| ENVIRONMENTAL Min Nu Parameter Conditions/Description Min Nu Operating Temperature -20 Storage Temperature -40 Derating See Section 4.11 for full temperature deratings -40 Image: Content of the section 4.11 for full temperature deratings | | | | | | |
| Parameter Conditions/Description Min Nr Operating Temperature -20 | | | | Compliant | | |
| Parameter Conditions/Description Min Nr Operating Temperature -20 | ENVIRONMENTAL | | | | | |
| Operating Temperature -20 Storage Temperature -40 Derating See Section 4.11 for full temperature deratings | | Conditions/Description | Min | Nom | Max | Units |
| Storage Temperature -40 Derating See Section 4.11 for full temperature deratings -40 | | | | | +70 | °C |
| Derating See Section 4.11 for full temperature deratings | | | | | +85 | 0°C |
| | | See Section 4.11 for full tomporature doratings | -+U | | +00 | U |
| relative numbers in the number of the number | | | 5 | | 95 | 0/ יום |
| | | | J | | 95 | %RH |
| Shock 3000 Bumps, 10G (16ms) half sine Vibration 1.5G 10 | | 3000 Bumps, 10G (16ms) hait sine | | | | |

2. The specifications contained herein are believed to be correct at time of publication and are subject to change without notice.

3. All specifications at nominal input, full load, 25°C unless otherwise stated.

4. XLD: 800W peak for 1s; Duty cycle 7%. powerMod output power must not exceed normal ratings.

5. When powering inductive or capacitive loads, it is recommended to use a blocking diode on the output.

6. Conformal Coating option: See Sections 3.1 and 4.10 for details.

7. For section references above go to the Xgen Designers Manual.

8. SEMI F47 compliant at input voltages >160VAC. Consult Excelsys for details.







PLUG & PLAY POWER next generation power solution

FEATURES & OPTIONS

- EN60601-1 3rd edition approved
- · Less than 300µA leakage current
- 150µA option available
- 4000VAC isolation
- Ultra high efficiency, up to 89%
- Extra low profile: 1U height (40mm)
- Plug & Play Power allows fast custom configuration
- · Individual output control signals
- · All outputs fully floating
- Series / Parallel of multiple outputs
- Few electrolytic capacitors (all long life)
- 5V bias standby voltage provided
- Standard Xgen product options include: Conformal Coating, Low Acoustic Noise, Low Leakage Current, Extra Ruggedisation, Connector, Cabling & Mounting options, Thermal Signals and Reverse Fans. See Section 4.10 for more information

APPLICATIONS INCLUDE

- · Radiological imaging
- Clinical diagnostics
- Medical lasers
- Clinical chemistry

MECHANICAL SPECIFICATIONS



excelsys

The XM family of medically approved power supplies provides up to 750W in a slimline 1U package. The XM family carries the latest safety agency approvals to EN60601-1 and UL60601-1 3rd Edition, meeting the stringent creepage and clearance requirements in this compact package. Providing up to 8 isolated outputs, the XM family is the most flexible power supply in its class and brings affordable configurable power to the 200-750W medical market.

The XM family consists of 4 *powerPac* models in 200W, 400W, 600W and 750W power levels. Each *powerPac* model may be populated with up to 4 *powerMods* selected from the table of *powerMods* shown below. Simply select your appropriate *powerPac* and *powerMods* to get your instant custom power solution.

This slimline product boasts unrivalled power density, providing significant system space savings. Combined with ultra-high efficiencies, the XM family provides system designers with flexible instant solutions that significantly shorten system design-in time.

| powerMo | ds | | | | | | powerF | Pacs | |
|---------------|-------|------|------|------|------|-------|--------|-------|-------|
| MODEL | Vr | min | Vnom | Vmax | lmax | Watts | | MODEL | Watts |
| | Vtrim | Vpot | | | | | | XMA | 200W |
| Xg1 | 1.0 | 1.5 | 2.5 | 3.6 | 50A | 125W | \geq | XMB | 400W |
| Xg2 | 1.5 | 3.2 | 5.0 | 6.0 | 40A | 200W | XM | XMC | 600W |
| Xg3 | 4.0 | 6.0 | 12.0 | 15.0 | 20A | 240W | | XMD | 750W |
| Xg4 | 8.0 | 12.0 | 24.0 | 30.0 | 10A | 240W | | | |
| Xg5 | 8.0 | 28 | 48.0 | 58.0 | 6A | 288W | | | |
| Xg7 | | 5.0 | 24.0 | 28.0 | 5A | 120W | | | |
| Xg8 V1 | | 5.0 | 24.0 | 28.0 | ЗA | 72W | | | |
| V2 | | 5.0 | 24.0 | 28.0 | ЗA | 72W | | | |

Note: See diagrams on pages 34-37

Slimline Medical

SPECIFICATION applies to configured units consisting of powerMods plugged into the appropriate powerPac

| Parameter | Conditions/Description | Min | Nom | Max | Units |
|---|---|--------------------------------|---|------------------------------------|--|
| nput Voltage Range | Universal Input 47-440Hz | 85 | | 264 | VAC |
| | | 120 | | 380 | VDC |
| Power Rating | XMA:200W, XMB:400W, XMC:600W, XMD:750W See Section 4.11 for line voltage deratings | | | | |
| Input Current XMA | 85VAC in 200W out | | 4.0 | | Α |
| XMB | 85VAC in 400W out | | 6.0 | | A |
| XMC | 85VAC in 400W out | | 7.5 | | A |
| XMD | 85VAC in 525W out | | 7.5 | | Α |
| Inrush Current | 230VAC, 25°C | | | 50 | Α |
| Undervoltage Lockout | Shutdown | 65 | | 74 | VAC |
| Fusing XMA | 250V 5 x 20mm | | F5A HRC | | |
| XMB | 250V 5 x 20mm | | F6.3A HRC | | |
| XMC, XMD | 250V 5 x 20mm | | F8A HRC | | |
| OUTPUT Parameter | Conditions/Description | Min | Nom | Max | Units |
| powerMod Power | As per <i>powerMod</i> table | | Nom | Max | Units |
| Output Adjustment Range | Manual: Multi-turn potentiometer. As per <i>powerMod</i> table | | | | |
| | Electronic: See Section 4.6 | | 0 | | |
| Minimum Load | For ±10% change from nominal line | | 0 | ±0.1 | A % |
| Line Regulation Load Regulation | For ±10% change from nominal line For 25% to 75% load change | | | ±0.1 ±0.2 | % |
| Cross Regulation | | | | ±0.2 ±0.2 | % |
| Transient Response | For 25% to 75% load change Voltage Deviation | | | 10.2 | % |
| | Settling Time | | | 250 | μs |
| Ripple and Noise | 20MHz 100mV or 1.0% pk-pk | | | - | |
| Overvoltage Protection | 1st level: Vset Tracking. 2nd level: Vmax (Latching) | 110 | | 125 | % |
| Overcurrent Protection | Straight line with hiccup activation at <30% of Vnom See Section 4.6 | 110 | | 120 | % |
| Remote Sense | Max. line drop compensation. (except Xg7, Xg8) | | | 0.5 | VDC |
| Overshoot | | | | 2 | % |
| Turn-on Delay | From AC in and Global Enable / powerMod Enable XMA, XMB, XMC | | | 700/6 | ms |
| Dia a Tima | From AC in and Global Enable / powerMod Enable XMD | | | 1000 / 6 | ms |
| Rise Time | Monotonic | 20/45 | | 5 | ms |
| Hold-up Time Output Isolation | For nominal output voltages at full load XMA,XMB, XMC/XMD Output to Output / Output to Chassis | 20/15 500 / 500 | | | ms VDC |
| | | 5007500 | | | VDC |
| | | | | | |
| GENERAL Parameter | Conditions/Description | Min | Nom | Max | Units |
| Parameter | Conditions/Description | Min 4000 | Nom | Мах | |
| | Input to Output | 4000 | Nom | Мах | VAC |
| Parameter Isolation Voltage | | | | Max | VAC VAC |
| Parameter Isolation Voltage Efficiency | Input to Output Input to Chassis 230VAC, 750W @ 24V | 4000 | Nom 89 | Max | VAC |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals | Input to Output Input to Chassis | 4000 | | Max 300 | VAC VAC |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals | Input to Output Input to Chassis 230VAC, 750W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 | 4000 | | | VAC VAC % |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals | Input to Output Input to Chassis 230VAC, 750W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 | 4000 1500 | | 300 150 | VAC VAC % µA µA |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply | Input to Output Input to Chassis 230VAC, 750W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available | 4000 | | 300 150 5.2 | VAC VAC % µA |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply | Input to Output Input to Chassis 230VAC, 750W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod | 4000 1500 | 89 | 300 150 5.2 0.958 | VAC VAC % µA µA VDC fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply | Input to Output Input to Chassis 230VAC, 750W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available | 4000 1500 | 89 | 300 150 5.2 | VAC VAC % µA µA VDC |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability | Input to Output Input to Chassis 230VAC, 750W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac | 4000 1500 | 89 5.0 | 300 150 5.2 0.958 | VAC VAC % µA µA VDC fpmh fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability Parameter | Input to Output Input to Chassis 230VAC, 750W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod | 4000 1500 | 89 | 300 150 5.2 0.958 | VAC VAC % µA µA VDC fpmh fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability Parameter Emissions | Input to Output Input to Chassis 230VAC, 750W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard | 4000 1500 | 89 5.0 Level | 300 150 5.2 0.958 | VAC VAC % µA µA VDC fpmh fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability Parameter Emissions Conducted | Input to Output Input to Chassis 230VAC, 750W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC | 4000 1500 | 89 5.0 Level Level B | 300 150 5.2 0.958 | VAC VAC % µA µA VDC fpmh fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability Parameter Emissions Conducted Radiated | Input to Output Input to Chassis 230VAC, 750W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC | 4000 1500 | 89 5.0 Level Level B Level B | 300 150 5.2 0.958 | VAC VAC % µA µA VDC fpmh fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability Parameter Emissions Conducted Radiated Harmonic Distortion | Input to Output Input to Chassis 230VAC, 750W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load <i>powerMod</i> See Section 4.12. <i>powerPac</i> excludes fans <i>powerPac</i> Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A | 4000 1500 | 89 5.0 Level Level B Level B Compliant | 300 150 5.2 0.958 | VAC VAC % µA µA VDC fpmh fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation | Input to Output Input to Chassis 230VAC, 750W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC | 4000 1500 | 89 5.0 Level Level B Level B | 300 150 5.2 0.958 | VAC VAC % µA µA VDC fpmh fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation | Input to Output Input to Chassis 230VAC, 750W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 | 4000 1500 | 89 5.0 Level Level B Level B Compliant Compliant | 300 150 5.2 0.958 | VAC VAC % µA µA VDC fpmh fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge | Input to Output Input to Chassis 230VAC, 750W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 | 4000 1500 | 89 5.0 Level Level B Level B Compliant Compliant Level 2 | 300 150 5.2 0.958 | VAC VAC % µA µA VDC fpmh fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity | Input to Output Input to Chassis 230VAC, 750W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-3 | 4000 1500 | 89 5.0 Level Level B Level B Compliant Compliant Level 2 Level 3 | 300 150 5.2 0.958 | VAC VAC % µA µA VDC fpmh fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst | Input to Output Input to Chassis 230VAC, 750W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-3 EN61000-4-4 | 4000 1500 | 89 5.0 Level Level B Level B Compliant Compliant Compliant Level 2 Level 3 Level 3 | 300 150 5.2 0.958 | VAC VAC % µA µA VDC fpmh fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges | Input to Output Input to Chassis 230VAC, 750W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-2 EN61000-4-3 EN61000-4-5 | 4000 1500 | 89 5.0 Level Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 | 300 150 5.2 0.958 | VAC VAC % µA µA VDC fpmh fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity | Input to Output Input to Chassis 230VAC, 750W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-3 EN61000-4-4 | 4000 1500 | 89 5.0 Level Level B Level B Compliant Compliant Compliant Level 2 Level 3 Level 3 | 300 150 5.2 0.958 | VAC VAC % µA µA VDC fpmh fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation | Input to Output Input to Chassis 230VAC, 750W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-3 EN61000-4-3 EN61000-4-5 EN61000-4-6 | 4000 1500 | 89 5.0 Level Level B Level B Compliant Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 | 300 150 5.2 0.958 | VAC VAC % µA µA VDC fpmh fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips | Input to Output Input to Chassis 230VAC, 750W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-2 EN61000-4-3 EN61000-4-5 EN61000-4-6 EN61000-4-11 | 4000 1500 4.8 4.8 | 89 5.0 5.0 Level B Level B Compliant Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | 300 150 5.2 0.958 0.92 | VAC VAC % µA µA VDC fpmh fpmh Units |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips Parameter | Input to Output Input to Chassis 230VAC, 750W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-3 EN61000-4-3 EN61000-4-5 EN61000-4-6 | 4000 1500 4.8 4.8 | 89 5.0 Level Level B Level B Compliant Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 | 300 150 5.2 0.958 0.92 | VAC VAC % µA µA VDC fpmh fpmh Units |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips Parameter Operating Temperature | Input to Output Input to Chassis 230VAC, 750W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-2 EN61000-4-3 EN61000-4-5 EN61000-4-6 EN61000-4-11 | 4000 1500 4.8 4.8 | 89 5.0 5.0 Level B Level B Compliant Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | 300 150 5.2 0.958 0.92 | VAC VAC % µA µA VDC fpmh fpmh Units |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips Parameter Operating Temperature Storage Temperature | Input to Output Input to Chassis 230VAC, 750W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-1 | 4000 1500 4.8 4.8 | 89 5.0 5.0 Level B Level B Compliant Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | 300 150 5.2 0.958 0.92 | VAC VAC % µA µA VDC fpmh fpmh Units |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Inmunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips Parameter Operating Temperature Storage Temperature Derating | Input to Output Input to Chassis 230VAC, 750W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-3 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-6 EN61000-4-11 Conditions/Description See Section 4.11 for full temperature deratings | 4000 1500 4.8 4.8 | 89 5.0 5.0 Level B Level B Compliant Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | 300 150 5.2 0.958 0.92 | VAC VAC % µA µA VDC fpmh fpmh Units Units |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Electrostatic Discharge Radiated Immunity Electrostatic Discharge Radiated Immunity Electrostatic Discharge Radiated Immunity Conducted Immunity Voltage Dips Parameter Operating Temperature Storage Temperature | Input to Output Input to Chassis 230VAC, 750W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-1 | 4000 1500 4.8 4.8 | 89 5.0 5.0 Level B Level B Compliant Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | 300 150 5.2 0.958 0.92 | VAC % µA µA VDC fpmh fpmh Units |

NOTES

1. This product is not intended for use as a stand alone unit and must be installed by qualified personnel.

2. The specifications contained herein are believed to be correct at time of publication and are subject to change without notice.

All specifications at nominal input, full load, 25°C unless otherwise stated.
 XMD: 800W peak for 1s; Duty cycle 7%. *powerMod* output power must not exceed normal ratings.

5. When powering inductive or capacitive loads, it is recommended to use a blocking diode on the output.

6. For section references above go to the Xgen Designers Manual.





Slimline Power Supply

User Configurable 1U size



PLUG & PLAY POWER next generation power solution

FEATURES & OPTIONS

- Low Acoustic noise 39.8dBA
- Ultra high efficiency, up to 89%
- Extra low profile: 1U height (40mm)Plug & Play Power allows fast custom
- configuration
- Individual output control signals
- All outputs fully floating
- Series / Parallel of multiple outputs
- Few electrolytic capacitors (all long life)
- Visual LED indicators
- 5V bias standby voltage provided
- SEMI F47 Compliant
- Standard Xgen product options include: Conformal Coating, Low Acoustic Noise, Low Leakage Current, Extra Ruggedisation, Connector, Cabling & Mounting options, Thermal Signals and Reverse Fans. See Section 4.10 for more information

APPLICATIONS INCLUDE

- Audio Equipment
- Test and measurement
- Telecommunications

EFFICIENCY (typical)



The XK family of low acoustic noise power supplies provides up to 600W in a slimline $1U \ge 260$ mm ≥ 89 mm package. Providing up to 8 isolated outputs, the XK family is the most flexible power supply in its class and brings affordable configurable power to the 200-600W market.

Ideal for acoustic sensitive applications, the XK boasts unrivalled power density saving valuable system space. Combine with ultra high efficiencies, the XK family provides system designers with flexible instant solutions that significantly shorten and simplify system design-in time.

The XK family consists of 3 *powerPac* models in 200W, 400W and 600W power levels. Each *powerPac* model may be populated with up to 4 *powerMods* selected from the table of *powerMods* shown below.

All configurations carry full safety agency approvals, UL60950, EN60950 and are CE marked.

| powerMo | ds | | | | | |
|--------------|-------------|------------------------|--------------|--------------|----------|------------|
| MODEL | Vı Vtrim | min _{Vpot} | Vnom | Vmax | lmax | Watts |
| Xg1 | 1.0 | 1.5 | 2.5 | 3.6 | 50A | 125W |
| Xg2 | 1.5 | 3.2 | 5.0 | 6.0 | 40A | 200W |
| Xg3 | 4.0 | 6.0 | 12.0 | 15.0 | 20A | 240W |
| Xg4 | 8.0 | 12.0 | 24.0 | 30.0 | 10A | 240W |
| Xg5 | 8.0 | 28 | 48.0 | 58.0 | 6A | 288W |
| Xg7 | | 5.0 | 24.0 | 28.0 | 5A | 120W |
| Xg8 v1 v2 | | 5.0 5.0 | 24.0 24.0 | 28.0 28.0 | 3A 3A | 72W 72W |

powerPacs

| | MODEL | Watts |
|---|-------|-------|
| | XKA | 200W |
| X | XKB | 400W |
| | XKC | 600W |

*qen*Series

MECHANICAL SPECIFICATIONS

Note: See diagrams on pages 34-37





Low Acoustic Noise

SPECIFICATION applies to configured units consisting of powerMods plugged into the appropriate powerPac

| INPUT | | | | | |
|---|--|------------|--|---------------|---|
| Parameter | Conditions/Description | Min | Nom | Max | Units |
| nput Voltage Range | Universal Input 47-440Hz | 85 | | 264 | VAC |
| | | 120 | | 380 | VDC |
| Power Rating | XKA:200W, XKB:400W, XKC:600W | | | | |
| | See Section 4.11 for line voltage deratings | | | | |
| Input Current XKA | 85VAC in 200W out | | 4.5 | | A |
| XKB | 85VAC in 400W out | | 5.5 | | A |
| XKC | 85VAC in 400W out | | 7.5 | | A |
| Inrush Current | 230VAC, 25°C | | | 50 | A |
| Undervoltage Lockout | Shutdown | 65 | | 74 | VAC |
| Fusing XKA | 250V 5 x 20mm | | F5A HRC | | |
| XKB | 250V 5 x 20mm | | F6.3A HRC | | |
| XKC | 250V 5 x 20mm | | F8A HRC | | |
| Ουτρυτ | | | | | |
| Parameter | Conditions/Description | Min | Nom | Max | Units |
| powerMod Power | As per powerMod table | | | | |
| Output Adjustment Range | Manual: Multi-turn potentiometer. As per <i>powerMod</i> table | | | | |
| | Electronic: See Section 4.6 | | | | |
| Minimum Load | | | 0 | | Α |
| Line Regulation | For ±10% change from nominal line | | | ±0.1 | % |
| Load Regulation | For 25% to 75% load change | | | ±0.2 | % |
| Cross Regulation | | | | ±0.2 | % |
| Transient Response | For 25% to 75% load change Voltage Deviation | | | 10 | % |
| • | Settling Time | | | 250 | μs |
| Ripple and Noise | 20MHz 100mV or 1.0% pk-pk | | | | |
| Overvoltage Protection | Two-level. 1st level: Vset Tracking. 2nd level: Vmax (Latching) | 110 | | 125 | % |
| Overcurrent Protection | Straight line with hiccup activation at <30% of Vnom | 110 | | 120 | % |
| | See Section 4.6 | | | | |
| Remote Sense | Max. line drop compensation. (except Xg7, Xg8) | | | 0.5 | VDC |
| Overshoot | | | | 2 | % |
| Turn-on Delay | From AC in and Global Enable / powerMod Enable | | | 700 / 6 | ms |
| Rise Time | Monotonic | | | 5 | ms |
| Hold-up Time | For nominal output voltages at full load | 20 | | | ms |
| Output Isolation | Output to Output / Output to Chassis | 500 / 500 | | | VDC |
| GENERAL | | | | | |
| | | B.d.L. | News | | 11 |
| Parameter | Conditions/Description | Min | Nom | Max | Units |
| Isolation Voltage | Input to Output | 3000 | | | VAC |
| | Input to Chassis | 1500 | 00 | | VAC |
| Efficiency | 230VAC, 600W @ 24V | | 89 | | % |
| Safety Agency Approvals | EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 | | | | - |
| Leakage Current | 250VAC, 60Hz, 25°C | | | 1.5 | mA |
| Signals | See Section 4.9 | 4.0 | 5.0 | 5.0 | |
| Bias Supply | Always on. Current 250mA. 500mA option available | 4.8 | 5.0 | 5.2 | VDC |
| | | | | 0.050 | 6 1 |
| Reliability | Failures per million hours at 40°C and full load powerMod | | | 0.958 | fpmh |
| Reliability | Failures per million hours at 40°C and full loadpowerModSee Section 4.12.powerPac excludes fanspowerPac | | | 0.958 0.92 | fpmh fpmh |
| - | | | | | |
| - | | | Level | | fpmh |
| EMC Parameter | See Section 4.12. <i>powerPac</i> excludes fans <i>powerPac</i> | | Level | | fpmh |
| EMC Parameter Emissions | See Section 4.12. powerPac excludes fans powerPac Standard | | | | fpmh |
| EMC Parameter Emissions Conducted | See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC | | Level B | | fpmh |
| EMC Parameter Emissions Conducted Radiated | See Section 4.12. powerPac excludes fans powerPac Standard | | Level B Level B | | fpmh |
| EMC Parameter Emissions Conducted Radiated Harmonic Distortion | See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC | | Level B | | fpmh |
| EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation | See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A | | Level B Level B Compliant | | fpmh |
| EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation | See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A | | Level B Level B Compliant | | fpmh |
| EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge | See Section 4.12. powerPac excludes fans powerPac Standard | | Level B Level B Compliant Compliant Level 2 | | fpmh |
| EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity | See Section 4.12. powerPac excludes fans powerPac Standard | | Level B Level B Compliant Compliant | | fpmh |
| EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst | See Section 4.12. powerPac excludes fans powerPac Standard | | Level B Level B Compliant Compliant Level 2 Level 3 | | fpmh |
| EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges | See Section 4.12. powerPac excludes fans powerPac Standard | | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 | | fpmh |
| EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity | See Section 4.12. powerPac excludes fans powerPac Standard | | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 | | fpmh |
| EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips | See Section 4.12. powerPac excludes fans powerPac Standard | | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 | | fpmh |
| EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL | See Section 4.12. powerPac excludes fans powerPac Standard | | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | 0.92 | fpmh Units Units |
| EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL | See Section 4.12. powerPac excludes fans powerPac Standard | Min | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 | | fpmh Units Units |
| EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter | See Section 4.12. powerPac excludes fans powerPac Standard | -20 | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | 0.92 | fpmh Units Units |
| Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature Storage Temperature | See Section 4.12. powerPac excludes fans powerPac Standard | | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | 0.92 | fpmh Units Units |
| EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature Storage Temperature | See Section 4.12. powerPac excludes fans powerPac Standard | -20 | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | 0.92 | fpmh Units Units |
| EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature Storage Temperature Derating | See Section 4.12. powerPac excludes fans powerPac Standard | -20 | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | 0.92 | fpmh Units Units |
| EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature Derating Relative Humidity | See Section 4.12. powerPac excludes fans powerPac Standard | -20 -40 | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | 0.92 | fpmh Units Units Units Units Units |
| EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature | See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-11, SEMI F47 compliant. See note 7. Conditions/Description See Section 4.11 for full temperature deratings Non-condensing | -20 -40 | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | 0.92 | fpmh Units Units Units Units |

NOTES

1. This product is not intended for use as a stand alone unit and must be installed by qualified personnel.

2. The specifications contained herein are believed to be correct at time of publication and are subject to change without notice.

3. All specifications at nominal input, full load, 25°C unless otherwise stated.

4. When powering inductive or capacitive loads, it is recommended to use a blocking diode on the output.

5. Conformal Coating option: See Sections 3.1 and 4.10 for details.

6. For section references above go to the Xgen Designers Manual.

7. SEMI F47 compliant at input voltages >160VAC. Consult Excelsys for details.







Medical Power Supply

Low Acoustic Noise 1U size



PLUG & PLAY POWER next generation power solution

FEATURES & OPTIONS

- Low Acoustic noise 39.8dBA
- EN60601-1 3rd edition approved
- · Less than 300µA leakage current
- 150µA option available
- 4000VAC isolation
- Ultra high efficiency, up to 89%
- Extra low profile: 1U height (40mm)
- · Plug & Play Power allows fast custom configuration
- · Individual output control signals
- · All outputs fully floating
- · Series / Parallel of multiple outputs
- · Few electrolytic capacitors (all long life)
- 5V bias standby voltage provided
- Standard Xgen product options include: Conformal Coating, Low Acoustic Noise, Low Leakage Current, Extra Ruggedisation, Connector, Cabling & Mounting options, Thermal Signals and Reverse Fans. See Section 4.10 for more information

APPLICATIONS INCLUDE

- · Radiological imaging
- **Clinical diagnostics**
- Medical lasers
- Clinical chemistry

*qen*Series

The XR family of low acoustic noise medically approved power supplies provides up to 600W in a slimline 1u x 260mm x 89mm package. Ideal for acoustic sensitive medical equipment, the XR family carries full safety agency approvals to EN60601-1 and UL60601-1 3rd Edition, meeting the stringent creepage and clearance requirements in this compact package. Providing up to 8 isolated outputs, the XR family is the most flexible power supply in its class and brings affordable configurable power to the 200-600W medical market.

The XR family consists of 3 *powerPac* models in 200W, 400W and 600W power levels. Each powerPac model may be populated with up to 4 powerMods selected from the table of powerMods shown below. Simply select your appropriate powerPac and powerMods to get your instant custom power solution.

This slimline product boasts unrivalled power density, providing significant system space savings. Combined with ultra-high efficiencies, the XR family provides system designers with flexible instant solutions that significantly shorten system design-in time.

| powerMo | ds | | | | | | powerP | acs |
|---------|-------|------|------|------|------|-------|--------------|------|
| MODEL | Vi | min | Vnom | Vmax | lmax | Watts | | MODE |
| | Vtrim | Vpot | | | | | | XRA |
| Xg1 | 1.0 | 1.5 | 2.5 | 3.6 | 50A | 125W | С С | XRB |
| Xg2 | 1.5 | 3.2 | 5.0 | 6.0 | 40A | 200W | \mathbf{X} | XRC |
| Xg3 | 4.0 | 6.0 | 12.0 | 15.0 | 20A | 240W | | ЛЮ |
| Xg4 | 8.0 | 12.0 | 24.0 | 30.0 | 10A | 240W | | |
| Xg5 | 8.0 | 28 | 48.0 | 58.0 | 6A | 288W | | |
| Xg7 | | 5.0 | 24.0 | 28.0 | 5A | 120W | | |
| Xg8 v1 | | 5.0 | 24.0 | 28.0 | ЗA | 72W | | |
| V2 | | 5.0 | 24.0 | 28.0 | ЗA | 72W | | |

Note: See diagrams on pages 34-37

Watts

200W

400W

600W



EFFICIENCY (typical)





Low Acoustic Noise Medical

SPECIFICATION applies to configured units consisting of powerMods plugged into the appropriate powerPac

| INPUT | | | | | |
|---|--|-----------------------------------|---|--|---|
| Parameter | Conditions/Description | Min | Nom | Max | Units |
| Input Voltage Range | Universal Input 47-440Hz | 85 120 | | 264 380 | VAC VDC |
| Power Rating | XRA:200W, XRB:400W, XRC:600W | 120 | | 000 | VDC |
| i olioi ruung | See Section 4.11 for line voltage deratings | | | | |
| Input Current XRA | 85VAC in 200W out | | 4.5 | | Α |
| XRB | 85VAC in 400W out | | 5.5 | | Α |
| XRC | 85VAC in 400W out | | 7.5 | | Α |
| Inrush Current | 230VAC, 25°C | | | 50 | Α |
| Undervoltage Lockout | Shutdown | 65 | | 74 | VAC |
| Fusing XRA | 250V 5 x 20mm | | F5A HRC | | |
| XRB XRC | 250V 5 x 20mm 250V 5 x 20mm | | F6.3A HRC F8A HRC | | |
| | 250V 5 X 20mm | | FOA HRC | | |
| | | | | | |
| Parameter | Conditions/Description | Min | Nom | Max | Units |
| powerMod Power | As per <i>powerMod</i> table | | | | |
| Output Adjustment Range | Manual: Multi-turn potentiometer. As per <i>powerMod</i> table | | | | |
| Minimum Load | Electronic: See Section 4.6 | | 0 | | A |
| Line Regulation | For ±10% change from nominal line | | U | ±0.1 | A % |
| Load Regulation | For 25% to 75% load change | | | ±0.1 ±0.2 | % |
| Cross Regulation | | | | ±0.2 | % |
| Transient Response | For 25% to 75% load change Voltage Deviation | | | 10 | % |
| • | Settling Time | | | 250 | μs |
| Ripple and Noise | 20MHz 100mV or 1.0% pk-pk | | | | |
| Overvoltage Protection | 1st level: Vset Tracking. 2nd level: Vmax (Latching) | 110 | | 125 | % |
| Overcurrent Protection | Straight line with hiccup activation at <30% of Vnom | 110 | | 120 | % |
| | See Section 4.6 | | | | |
| Remote Sense | Max. line drop compensation. (except Xg7, Xg8) | | | 0.5 | VDC |
| Overshoot Turn-on Delay | From AC in and Global Enable / powerMod Enable | | | 2 700 / 6 | % ms |
| Rise Time | Monotonic | | | 5 | ms |
| Hold-up Time | For nominal output voltages at full load | 20 | | 5 | ms |
| Output Isolation | Output to Output / Output to Chassis | 500 / 500 | | | VDC |
| GENERAL | | | | | |
| | | | | | |
| | | | | | |
| Parameter | Conditions/Description | Min | Nom | Max | |
| | Input to Output | 4000 | Nom | Max | VAC |
| Parameter Isolation Voltage | Input to Output Input to Chassis | | | Мах | VAC VAC |
| Parameter Isolation Voltage Efficiency | Input to Output Input to Chassis 230VAC, 600W @ 24V | 4000 | Nom 89 | Мах | VAC |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals | Input to Output Input to Chassis 230VAC, 600W @ 24V EN60601-1, UL2601-1, CSA601-1 UL File No. E230761 | 4000 | | | VAC VAC % |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals | Input to Output Input to Chassis 230VAC, 600W @ 24V | 4000 | | Max 300 150 | VAC VAC % |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current | Input to Output Input to Chassis 230VAC, 600W @ 24V EN60601-1, UL2601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C | 4000 | | 300 | VAC VAC % |
| Parameter Isolation Voltage Efficiency | Input to Output Input to Chassis 230VAC, 600W @ 24V EN60601-1, UL2601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 | 4000 | | 300 | VAC VAC % |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply | Input to Output Input to Chassis 230VAC, 600W @ 24V EN60601-1, UL2601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod | 4000 1500 | 89 | 300 150 5.2 0.958 | VAC VAC % μΑ μΑ VDC fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals | Input to Output Input to Chassis 230VAC, 600W @ 24V EN60601-1, UL2601-1, CSA601-1 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available | 4000 1500 | 89 | 300 150 5.2 | VAC VAC % μΑ μΑ VDC fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply | Input to Output Input to Chassis 230VAC, 600W @ 24V EN60601-1, UL2601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod | 4000 1500 | 89 | 300 150 5.2 0.958 | VAC VAC % µA µA |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC | Input to Output Input to Chassis 230VAC, 600W @ 24V EN60601-1, UL2601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod | 4000 1500 | 89 5.0 | 300 150 5.2 0.958 | VAC VAC μΑ μΑ VDC fpmh fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability | Input to Output Input to Chassis 230VAC, 600W @ 24V EN60601-1, UL2601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac | 4000 1500 | 89 | 300 150 5.2 0.958 | VAC VAC μΑ μΑ VDC fpmh fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter | Input to Output Input to Chassis 230VAC, 600W @ 24V EN60601-1, UL2601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard | 4000 1500 | 89 5.0 | 300 150 5.2 0.958 | VAC VAC μΑ μΑ VDC fpmh fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions | Input to Output Input to Chassis 230VAC, 600W @ 24V EN60601-1, UL2601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac | 4000 1500 | 89 5.0 Level | 300 150 5.2 0.958 | VAC VAC μΑ μΑ VDC fpmh fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated | Input to Output Input to Chassis 230VAC, 600W @ 24V EN60601-1, UL2601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC | 4000 1500 | 89 5.0 Level Level B | 300 150 5.2 0.958 | VAC VAC μΑ μΑ VDC fpmh fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation | Input to Output Input to Chassis 230VAC, 600W @ 24V EN60601-1, UL2601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC | 4000 1500 | 89 5.0 Level Level B Level B | 300 150 5.2 0.958 | VAC VAC μΑ μΑ VDC fpmh fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity | Input to Output Input to Chassis 230VAC, 600W @ 24V EN60601-1, UL2601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 | 4000 1500 | 89 5.0 Level Level B Level B Compliant Compliant | 300 150 5.2 0.958 | VAC VAC μΑ μΑ VDC fpmh fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge | Input to Output Input to Chassis 230VAC, 600W @ 24V EN60601-1, UL2601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 | 4000 1500 | 89 5.0 Level Level B Level B Compliant Compliant Level 2 | 300 150 5.2 0.958 | VAC VAC μΑ μΑ VDC fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity | Input to Output Input to Chassis 230VAC, 600W @ 24V EN60601-1, UL2601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load <i>powerMod</i> See Section 4.12. <i>powerPac</i> excludes fans <i>powerPac</i> Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 | 4000 1500 | 89 5.0 5.0 Level B Level B Compliant Compliant Compliant Level 2 Level 3 | 300 150 5.2 0.958 | VAC VAC μΑ μΑ VDC fpmh fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst | Input to Output Input to Chassis 230VAC, 600W @ 24V EN60601-1, UL2601-1, CSA601-1 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN61000-3-2 EN61000-4-2 EN61000-4-3 EN61000-4-4 | 4000 1500 | 89 5.0 5.0 Level Level B Level B Compliant Compliant Compliant Level 2 Level 3 Level 3 | 300 150 5.2 0.958 | VAC VAC μΑ μΑ VDC fpmh fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges | Input to Output Input to Chassis 230VAC, 600W @ 24V EN60601-1, UL2601-1, CSA601-1 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 EN61000-4-2 EN61000-4-2 EN61000-4-3 EN61000-4-5 | 4000 1500 | 89 5.0 5.0 Level Level B Level B Compliant Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 | 300 150 5.2 0.958 | VAC VAC μΑ μΑ VDC fpmh fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity | Input to Output Input to Chassis 230VAC, 600W @ 24V EN60601-1, UL2601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-2 EN61000-4-5 EN61000-4-5 EN61000-4-6 | 4000 1500 | 89 5.0 5.0 Level Level B Level B Compliant Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 | 300 150 5.2 0.958 | VAC VAC μΑ μΑ VDC fpmh fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips | Input to Output Input to Chassis 230VAC, 600W @ 24V EN60601-1, UL2601-1, CSA601-1 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 EN61000-4-2 EN61000-4-2 EN61000-4-3 EN61000-4-5 | 4000 1500 | 89 5.0 5.0 Level Level B Level B Compliant Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 | 300 150 5.2 0.958 | VAC VAC μΑ μΑ VDC fpmh fpmh |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL | Input to Output Input to Chassis 230VAC, 600W @ 24V EN60601-1, UL2601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-2 EN61000-4-5 EN61000-4-5 EN61000-4-6 | 4000 1500 4.8 4.8 | 89 5.0 5.0 Level Level B Level B Compliant Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 | 300 150 5.2 0.958 0.92 | VAC VAC VAC VDC fpmh fpmh Units |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter | Input to Output Input to Chassis 230VAC, 600W @ 24V EN60601-1, UL2601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-2 EN61000-4-5 EN61000-4-5 EN61000-4-6 | 4000 1500 4.8 4.8 | 89 5.0 5.0 Level Level B Level B Compliant Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 | 300 150 5.2 0.958 0.92 | VAC VAC VAC VDC fpmh fpmh Units |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature | Input to Output Input to Chassis 230VAC, 600W @ 24V EN60601-1, UL2601-1, CSA601-1 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-3 EN61000-4-3 EN61000-4-5 EN61000-4-11 | 4000 1500 4.8 4.8 4.8 | 89 5.0 5.0 Level B Level B Compliant Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | 300 150 5.2 0.958 0.92 | VAC VAC % µA µA VDC fpmh fpmh Units |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature Storage Temperature | Input to Output Input to Chassis 230VAC, 600W @ 24V EN60601-1, UL2601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-3 EN61000-4-3 EN61000-4-5 EN61000-4-6 EN61000-4-6 EN61000-4-11 Conditions/Description | 4000 1500 4.8 4.8 | 89 5.0 5.0 Level B Level B Compliant Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | 300 150 5.2 0.958 0.92 | VAC VAC VAC VDC fpmh fpmh Units |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature Storage Temperature Derating | Input to Output Input to Chassis 230VAC, 600W @ 24V EN60601-1, UL2601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load <i>powerMod</i> See Section 4.12. <i>powerPac</i> excludes fans <i>powerPac</i> Standard Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-3 EN61000-4-3 EN61000-4-5 EN61000-4-6 EN61000-4-11 Conditions/Description See Section 4.11 for full temperature deratings | 4000 1500 4.8 4.8 4.8 | 89 5.0 5.0 Level B Level B Compliant Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | 300 150 5.2 0.958 0.92 | VAC VAC VAC VDC fpmh fpmh Units Units |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature Storage Temperature Derating Relative Humidity | Input to Output Input to Chassis 230VAC, 600W @ 24V EN60601-1, UL2601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-2 EN61000-4-5 EN61000-4-5 EN61000-4-6 EN61000-4-6 EN61000-4-11 Conditions/Description See Section 4.11 for full temperature deratings Non-condensing | 4000 1500 4.8 4.8 4.8 | 89 5.0 5.0 Level B Level B Level B Compliant Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant Nom | 300 150 5.2 0.958 0.92 | VAC VAC % Units Units C °C %RH |
| Parameter Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature Operating Temperature Derating | Input to Output Input to Chassis 230VAC, 600W @ 24V EN60601-1, UL2601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load <i>powerMod</i> See Section 4.12. <i>powerPac</i> excludes fans <i>powerPac</i> Standard Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-3 EN61000-4-3 EN61000-4-5 EN61000-4-6 EN61000-4-11 Conditions/Description See Section 4.11 for full temperature deratings | 4000 1500 4.8 4.8 4.8 | 89 5.0 5.0 Level B Level B Compliant Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | 300 150 5.2 0.958 0.92 | VAC % µA µA VDC fpmh fpmh Units |

NOTES

1. This product is not intended for use as a stand alone unit and must be installed by qualified personnel.

2. The specifications contained herein are believed to be correct at time of publication and are subject to change without notice.

3. All specifications at nominal input, full load, 25°C unless otherwise stated.

- 4. When powering inductive or capacitive loads, it is recommended to use a blocking diode on the output.
- 5. For section references above go to the Xgen Designers Manual.



200W-400W



Ultra Low Noise Power Supply Ultra-high efficiency 1U size



Ultra Low Noise

PLUG & PLAY POWER next generation power solution

FEATURES & OPTIONS

- Low Acoustic noise 37.3dBA
- Ultra high efficiency, up to 89%
- Extra low profile: 1U height (40mm)
- Plug & Play Power allows fast custom configuration
- Individual output control signals
- All outputs fully floating
- Series / Parallel of multiple outputs
- Few electrolytic capacitors (all long life)
- Visual LED indicators
- 5V bias standby voltage provided
- Standard Xgen product options include: Conformal Coating, Low Acoustic Noise, Low Leakage Current, Extra Ruggedisation, Connector, Cabling & Mounting options, Thermal Signals and Reverse Fans. See Section 4.10 for more information

APPLICATIONS INCLUDE

- · Audio Equipment
- Test and measurement
- Telecommunications
- For Medical applications, See XN



The XT family of Ultra Low Noise power supplies provides up to 400W in an extremely compact 1U x 260mm x 89mm package. With efficiencies of up to 90%, the XT family employs an innovative plug & play architecture that allows users to instantly configure a custom power solution in less than 5 minutes!

Ideal for acoustic sensitive applications such as audio applications, the XT family provides unmatched efficiency and high power density, made possible through the combination of low loss technologies and the best field-proven technologies in planar magnetics and surface mount electronics.

The XT family consists of 2 *powerPac* models ranging in power levels from 200W to 400W. Each model may be populated with up to 4 *powerMods* selected from the table of *powerMods* shown below.

All configurations carry full safety agency approvals, UL60950, EN60950 and are CE marked.

| powerMo | ds | | | | | |
|---------|--------------------|------------------------|------|------|--------|-------|
| MODEL | Vi Vtrim | nin _{Vpot} | Vnom | Vmax | lmax | Watts |
| Xg1 | 1.0 | 1.5 | 2.5 | 3.6 | 41.6A | 104W |
| Xg2 | 1.5 | 3.2 | 5.0 | 6.0 | 33.2A | 166W |
| Xg3 | 4.0 | 6.0 | 12.0 | 15.0 | 16.67A | 200W |
| Xg4 | 8.0 | 12.0 | 24.0 | 30.0 | 8.33A | 200W |
| Xg5 | 8.0 | 28 | 48.0 | 58.0 | 5A | 240W |
| Xg7 | | 5.0 | 24.0 | 28.0 | 4.17A | 100W |
| Xg8 v1 | | 5.0 | 24.0 | 28.0 | 2.5A | 60W |
| V2 | | 5.0 | 24.0 | 28.0 | 2.5A | 60W |

powerPacs

| | MODEL | Watts |
|----------|-------|-------|
| H | XTA | 200W |
| \times | XTB | 400W |

powerMod Maximum Power Outputs (W) have been derated to operate with XT range of Ultra Low-Noise Power Supplies. See Section 4.11 Xgen Designers Manual for full derating details.

MECHANICAL SPECIFICATIONS

excelsys



EFFICIENCY (typical)



Ultra Low Noise

SPECIFICATION applies to configured units consisting of powerMods plugged into the appropriate powerPac

| INPUT Parameter | Conditions/Description | Min | Nom | Max | Units |
|---|--|------------|-----------|---------------|-----------------|
| | | | Nom | Max 264 | VAC |
| Input Voltage Range | Universal Input 47-440Hz | 85 120 | | 264 380 | VAC |
| Power Rating | XTA:200W. XTB:400W | 120 | | 500 | v DC |
| | See Section 4.11 for line voltage deratings | | | | |
| Input Current XTA | 85VAC in 200W out | | 4.5 | | Α |
| XTB | 85VAC in 283W out | | 5.0 | | A |
| | | | | | |
| Inrush Current | 230VAC, 25°C | | | 50 | А |
| Undervoltage Lockout | Shutdown | 65 | | 74 | VAC |
| Fusing XTA | 250V | | F5A HRC | | |
| XTB | 250V | | F6.3A HRC | | |
| | | | | | |
| OUTPUT | | | | | |
| Parameter | Conditions/Description | Min | Nom | Max | Units |
| powerMod Power | As per powerMod table | | | | |
| Output Adjustment Range | Manual: Multi-turn potentiometer. As per <i>powerMod</i> table Electronic: See Section 4.6 | | | | |
| Minimum Load | | | 0 | | Α |
| Line Regulation | For ±10% change from nominal line | | | ±0.1 | % |
| Load & Cross Regulation | For 25% to 75% load change | | | ±0.2 | % |
| Transient Response | For 25% to 75% load change Voltage Deviation | | | 10 | % |
| Dinula and Notes | Settling Time | | | 250 | μs |
| Ripple and Noise | 20MHz 100mV or 1.0% pk-pk | 110 | | 125 | % |
| Overvoltage Protection Overcurrent Protection | 1st level: Vset Tracking. 2nd level: Vmax (Latching) Straight line with hiccup activation at <30% of Vnom | 110 | | 125 | % |
| Overcurrent Frotection | Straight line with niccup activation at <30% of vhom See Section 4.6 | 110 | | 120 | 70 |
| Remote Sense | Max. line drop compensation. (except Xg7, Xg8) | | | 0.5 | VDC |
| Overshoot | | | | 2 | % |
| Turn-on Delay | From AC in and Global Enable / powerMod Enable | | | 700 / 6 | ms |
| Rise Time | Monotonic | | | 5 | ms |
| Hold-up Time | For nominal output voltages at full load. XTA & XTB | 20 / 15 | | | ms |
| Output Isolation | Output to Output / Output to Chassis | 500 / 500 | | | VDC |
| GENERAL | | | | | |
| Parameter | Conditions/Description | Min | Nom | Max | Units |
| Isolation Voltage | Input to Output | 3000 | | | VAC |
| | Input to Chassis | 1500 | | | VAC |
| Efficiency | 230VAC, 400W @ 24V | | 90 | | % |
| Safety Agency Approvals | EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 | | | | |
| Leakage Current | 250VAC, 60Hz, 25°C | | | 1.5 | mA |
| Signals | See Section 4.9 | 4.6 | 5.0 | 5.0 | 1/20 |
| Bias Supply | Always on. Current 250mA. 500mA option available | 4.8 | 5.0 | 5.2 | VDC |
| Reliability | Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac | | | 0.958 0.92 | fpmh fpmh |
| EMC | | | | 0.32 | ipmin |
| EMC Parameter | Standard | | Level | | Units |
| | Stanuaru | | Lever | | Units |
| Emissions Conducted | EN55011, EN55022, FCC | | Level B | | - |
| Radiated | EN55011, EN55022, FCC | | Level B | | |
| Harmonic Distortion | EN61000-3-2 Class A | | Compliant | | |
| Flicker & Fluctuation | EN61000-3-3 | | Compliant | | |
| Immunity | | | | | |
| Electrostatic Discharge | EN61000-4-2 | | Level 2 | | |
| Radiated Immunity | EN61000-4-3 | | Level 3 | | |
| Fast Transients-Burst | EN61000-4-4 | | Level 3 | | |
| Input Line Surges | EN61000-4-5 | | Level 3 | | _ |
| Conducted Immunity | EN61000-4-6 | | Level 3 | | _ |
| V I/ D' | EN61000-4-11 | | Compliant | | |
| Voltage Dips | | | | | |
| Voltage Dips ENVIRONMENTAL | | | | | Units |
| - · | Conditions/Description | Min | Nom | Max | onno |
| ENVIRONMENTAL | Conditions/Description | Min -20 | Nom | Max +70 | °C |
| ENVIRONMENTAL Parameter | Conditions/Description | | Nom | | |
| ENVIRONMENTAL Parameter Operating Temperature Storage Temperature Derating | See Section 4.11 for full temperature deratings | -20 -40 | Nom | +70 +85 | 0° 0° |
| ENVIRONMENTAL Parameter Operating Temperature Storage Temperature Derating Relative Humidity | See Section 4.11 for full temperature deratings Non-condensing | -20 | | +70 | °C °C %RH |
| ENVIRONMENTAL Parameter Operating Temperature Storage Temperature Derating | See Section 4.11 for full temperature deratings | -20 -40 | Nom | +70 +85 | O° O° |

NOTES

- This product is not intended for use as a stand alone unit and must be installed by qualified personnel.
 The specifications contained herein are believed to be correct at time of publication and are subject to change without notice.
- 3. All specifications at nominal input, full load, 25°C unless otherwise stated.
- 4. When powering inductive or capacitive loads, it is recommended to use a blocking diode on the output.
- 5. Conformal Coating option: See Sections 3.1 and 4.10 for details.
- 6. For section references above go to the Xgen Designers Manual.



200W-400W



Medically Approved Ultra Low Noise Power Supply

Ultra-high efficiency 1U size

Ultra Low Noise Medica

PLUG & PLAY POWER next generation power solution

FEATURES & OPTIONS

- Low Acoustic noise 37.3dBA
- EN60601-1 3rd edition approved
- Less than 300µA leakage current
- 150µA option available
- 4000VAC isolation
- Ultra high efficiency, up to 89%
- Extra low profile: 1U height (40mm)
- Plug & Play Power allows fast custom configuration
- · Individual output control signals
- · All outputs fully floating
- Series / Parallel of multiple outputs
- Few electrolytic capacitors (all long life)
- 5V bias standby voltage provided
- Standard Xgen product options include: Conformal Coating, Low Acoustic Noise, Low Leakage Current, Extra Ruggedisation, Connector, Cabling & Mounting options, Thermal Signals and Reverse Fans. See Section 4.10 for more information

APPLICATIONS INCLUDE

- · Clinical diagnostic equipment
- Medical lasers
- · Dialysis equipment
- · For Standard applications see XT



EFFICIENCY (typical)



The XN family of medically approved Ultra Low Noise power supplies provides up to 400W in an extremely compact 1U package. Providing up to 8 isolated DC outputs, the XN family employs innovative plug & play architecture allowing users to instantly configure a custom power solution in less than 5 minutes!

The XN family consists of 3 *powerPacs* ranging in power levels from 200W to 400W peak and 7 *powerMod* DC output modules. Simply select the appropriate *powerPac* and up to 4 *powerMods* from the tables below to complete your custom power supply.

The XN family boasts ultra-high efficiencies (up to 90%). The significant system space savings and reduced heat dissipation radically simplify system design.

All configurations carry full safety agency approvals including UL60601-1, EN60601-1 3rd Edition and are CE marked.

powerMods

| 1 | | | | | | | |
|---|--------|-------------|------------------------|------|------|--------|-------|
| | MODEL | Vı Vtrim | nin _{Vpot} | Vnom | Vmax | lmax | Watts |
| 1 | Xg1 | 1.0 | 1.5 | 2.5 | 3.6 | 41.6A | 104W |
| | Xg2 | 1.5 | 3.2 | 5.0 | 6.0 | 33.2A | 166W |
| | Xg3 | 4.0 | 6.0 | 12.0 | 15.0 | 16.67A | 200W |
| | Xg4 | 8.0 | 12.0 | 24.0 | 30.0 | 8.33A | 200W |
| | Xg5 | 8.0 | 28 | 48.0 | 58.0 | 5A | 240W |
| | Xg7 | | 5.0 | 24.0 | 28.0 | 4.17A | 100W |
| | Xg8 v1 | | 5.0 | 24.0 | 28.0 | 2.5A | 60W |
| | V2 | | 5.0 | 24.0 | 28.0 | 2.5A | 60W |

powerPacs

| | MODEL | Watts |
|--------------|-------|-------|
| Z | XNA | 200W |
| \mathbf{X} | XNB | 400W |

powerMod Maximum Power Outputs (W) have been derated to operate with XN range of Ultra Low-Noise Power Supplies. See Section 4.11 Xgen Designers' Manual for full derating details.

MECHANICAL SPECIFICATIONS

excelsys



Ultra Low Noise Medical

SPECIFICATION applies to configured units consisting of powerMods plugged into the appropriate powerPac

| INPUT | | | | | |
|---|--|------------|--|------------|------------------------|
| Parameter | Conditions/Decription | Min | Nom | Max | Units |
| nput Voltage Range | Universal Input 47-440Hz | 85 | | 264 | VAC |
| | | 120 | | 380 | VDC |
| Power Rating | XNA:200W, XNB:400W | | | | |
| | See Section 4.11 for line voltage deratings | | | | |
| Input Current XNA | 85VAC in 200W out | | 4.5 | | A |
| XNB | 85VAC in 283W out | | 5.0 | | A |
| | | | | | |
| Inrush Current | 230VAC, 25°C | 0.5 | | 50 | A |
| Undervoltage Lockout | Shutdown | 65 | 554.050 | 74 | VAC |
| Fusing XNA | 250V | | F5A HRC | | |
| XNB | 250V | | F6.3A HRC | | |
| OUTPUT | | | | | |
| Parameter | Conditions/Description | Min | Nom | Max | Units |
| powerMod Power | As per powerMod table | | Nom | max | |
| Output Adjustment Range | Manual: Multi-turn potentiometer. As per <i>powerMod</i> table | | | | |
| ouput najuotinont nango | Electronic: See Section 4.6 | | | | |
| Minimum Load | | | 0 | | A |
| Line Regulation | For ±10% change from nominal line | | Ŭ. | ±0.1 | % |
| Load & Cross Regulation | For 25% to 75% load change | | | ±0.1 | % |
| Transient Response | For 25% to 75% load change Voltage Deviation | | | 10 | % |
| | Settling Time | | | 250 | μs |
| Ripple and Noise | 220MHz 100mV or 1.0% pk-pk | | | 200 | μ0 |
| Overvoltage Protection | Two-level. 1st level: Vset Tracking. 2nd level: Vmax (Latching) | 110 | | 125 | % |
| Overcurrent Protection | Straight line with hiccup activation at <30% of Vnom | 110 | | 120 | % |
| | See Section 4.6 | | | - | |
| Remote Sense | Max. line drop compensation. (except Xg7, Xg8) | | | 0.5 | VDC |
| Overshoot | | | | 2 | % |
| Turn-on Delay | From AC in and Global Enable / powerMod Enable | | | 700 / 6 | ms |
| - | | | | | |
| Rise Time | Monotonic | | | 5 | ms |
| Hold-up Time | For nominal output voltages at full load. XNA & XNB | 20 / 15 | | | ms |
| Output Isolation | Output to Output / Output to Chassis | 500 / 500 | | | VDC |
| GENERAL | | | | | |
| Parameter | Conditions/Description | Min | Nom | Max | Units |
| | | | Nom | wax | |
| Isolation Voltage | Input to Output | 4000 | | | VAC |
| Efficiency | Input to Chassis 230VAC, 400W @ 24V | 1500 | 90 | | VAC |
| Efficiency Safety Agency Approvals | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 | | 90 | | % |
| Leakage Current | | | | 300 | |
| Leakage Current | 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C option 04 | | | 300 150 | μA μA |
| Signals | See Section 4.9 | | | 150 | μΑ |
| Bias Supply | Always on. Current 250mA. 500mA option available | 4.8 | 5.0 | 5.2 | VDC |
| Reliability | Failures per million hours at 40°C and full load powerMod | 4.0 | 5.0 | 0.958 | fpmh |
| Reliability | See Section 4.12. powerPac excludes fans powerPac | | | 0.930 | fpmh |
| | | | | 0.02 | ipiiii |
| EMC | | | | | |
| | | | | | |
| _ | Standard | | Level | | Units |
| Parameter | Standard | | Level | | Units |
| Parameter Emissions | Standard EN55011, EN55022, FCC | | Level Level B | | Units |
| Parameter Emissions Conducted | | | | | Units |
| Parameter Emissions Conducted Radiated | EN55011, EN55022, FCC | | Level B | | Units |
| Parameter Emissions Conducted Radiated Harmonic Distortion | EN55011, EN55022, FCC EN55011, EN55022, FCC | | Level B Level B | | Units |
| Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity | EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 | | Level B Level B Compliant Compliant | | Units |
| Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge | EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 | | Level B Level B Compliant Compliant Level 2 | | |
| Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity | EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 | | Level B Level B Compliant Compliant Level 2 Level 3 | | |
| Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst | EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-2 EN61000-4-3 EN61000-4-4 | | Level B Compliant Compliant Level 2 Level 3 Level 3 | | |
| Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst | EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 EN61000-4-3 EN61000-4-4 EN61000-4-5 | | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 | | |
| Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity | EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 | | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 | | |
| Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity | EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 EN61000-4-3 EN61000-4-4 EN61000-4-5 | | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 | | |
| Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips | EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 | | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 | | |
| Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL | EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-11 | | Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | | |
| Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter | EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 | Min | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 | Max | Units |
| Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature | EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-11 | -20 | Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | +70 | Units |
| Operating Temperature Storage Temperature | EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-5 EN61000-4-6 EN61000-4-11 Conditions/Description | | Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | | Units |
| Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature Storage Temperature Derating | EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-5 EN61000-4-6 EN61000-4-11 Conditions/Description See Section 4.11 for full temperature deratings | -20 -40 | Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | +70 +85 | Units °C °C |
| Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature Derating Relative Humidity | EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-5 EN61000-4-6 EN61000-4-11 Conditions/Description | -20 | Level B Compliant Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | +70 | Units C C %RH |
| Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature | EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-5 EN61000-4-6 EN61000-4-11 Conditions/Description See Section 4.11 for full temperature deratings | -20 -40 | Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | +70 +85 | Units °C °C |

NOTES

1. This product is not intended for use as a stand alone unit and must be installed by qualified personnel.

2. The specifications contained herein are believed to be correct at time of publication and are subject to change without notice.

3. All specifications at nominal input, full load, 25°C unless otherwise stated.

- 4. When powering inductive or capacitive loads, it is recommended to use a blocking diode on the output.
- 5. For section references above go to the Xgen Designers Manual.



PLUG & PLAY POWER next generation power solution

FEATURES & OPTIONS

- Ultra high efficiency, up to 90%
- Extra low profile: 1U height (40mm)
- Plug & Play Power allows fast custom configuration
- · Individual output control signals
- · All outputs fully floating
- · Series / Parallel of multiple outputs
- Few electrolytic capacitors (all long life)
- Visual LED indicators
- 5V bias standby voltage provided
- SEMI F47 Compliant
- Standard Xgen product options include: Conformal Coating, Low Acoustic Noise, Low Leakage Current, Extra Ruggedisation, Connector, Cabling & Mounting options, Thermal Signals and Reverse Fans. See Section 4.10 for more information

APPLICATIONS INCLUDE

- · Industrial machines
- Test and measurement
- Automation equipment
- Printing
- MIL-COTS applications

MECHANICAL SPECIFICATIONS



oplies provides up to 1340W in a slimline 1U package

The XC family of power supplies provides up to 1340W in a slimline 1U package. Providing up to 12 isolated outputs, the XC family is the most flexible power supply in its class and brings affordable configurable power to the 400-1340W market. The slimline product boasts unrivalled power density saving valuable system space.

Combined with ultra high efficiencies, the XC family provides system designers with flexible instant solutions that significantly shorten and simplify system design-in time.

The XC family consists of 5 *powerPac* models in 400W, 700W, 1000W, 1200W and 1340W power levels. Each *powerPac* model may be populated with up to 6 *powerMods* selected from the table of *powerMods* shown below.

All configurations carry full safety agency approvals, UL60950, EN60950 and are CE marked.

| powerMo | ds | | | | powerPacs | | | | |
|---------|-------|------|------|------|-----------|-------|--------|-------|-------|
| MODEL | Vmin | | Vnom | Vmax | lmax | Watts | | MODEL | Watts |
| | Vtrim | Vpot | | | | | | XCA | 400W |
| Xg1 | 1.0 | 1.5 | 2.5 | 3.6 | 50A | 125W | Ş | ХСВ | 700W |
| Xg2 | 1.5 | 3.2 | 5.0 | 6.0 | 40A | 200W | | XCC | 1000W |
| Xg3 | 4.0 | 6.0 | 12.0 | 15.0 | 20A | 240W | \sim | XCD | 1200W |
| Xg4 | 8.0 | 12.0 | 24.0 | 30.0 | 10A | 240W | | XCE | 1340W |
| Xg5 | 8.0 | 28 | 48.0 | 58.0 | 6A | 288W | - | | |
| Xg7 | | 5.0 | 24.0 | 28.0 | 5A | 120W | | | |
| Xg8 v1 | | 5.0 | 24.0 | 28.0 | ЗA | 72W | | | |
| V2 | | 5.0 | 24.0 | 28.0 | 3A | 72W | | | |

Note: See diagrams on pages 34-37





Standard

SPECIFICATION applies to configured units consisting of powerMods plugged into the appropriate powerPac

| Parameter | Conditions/Decription | Min | Nom | Max | Units |
|---|--|------------|--|-----------------------|--|
| Input Voltage Range | Universal Input 47-440Hz | 85 | | 264 | VAC |
| | | 120 | | 380 | VDC |
| Power Rating | XCA:400W, XCB:700W, XCC:1000W, XCD:1200W, XCE:1340W | | | | |
| | See Section 4.11 for line voltage deratings | | | | |
| Input Current XCA | 85VAC in 400W out | | 7.5 | | Α |
| XCB | 85VAC in 700W out | | 9.5 | | A |
| XCC, XCD | 85VAC in 850W out | | 11.5 | | A |
| XCE | 85VAC in 1000W out | | 14.0 | | Α |
| Inrush Current | 230VAC @ 25°C | | | 25 | Α |
| Undervoltage Lockout | Shutdown | 65 | | 74 | VAC |
| Fusing XCA | 250V | | F8A HRC | | |
| ХСВ | 250V | | F10A HRC | | |
| XCC, XCD | 250V | | F12A HRC | | |
| XCE | 250V | | F15A HRC | | |
| - | | | | | |
| Ουτρυτ | | | | | |
| Parameter | Conditions/Description | Min | Nom | Max | Units |
| powerMod Power | As per <i>powerMod</i> table | | | | |
| Output Adjustment Range | Manual: Multi-turn potentiometer. As per <i>powerMod</i> table | | | | |
| | Electronic: See Section 4.6 | | | | |
| Minimum Load | | | 0 | | Α |
| Line Regulation | For ±10% change from nominal line | | - | ±0.1 | % |
| Load & Cross Regulation | For 25% to 75% load change | | | ±0.1 | % |
| Transient Response | For 25% to 75% load change Voltage Deviation | | | 10.2 | % |
| manalone response | Settling Time | | | 250 | μs |
| Ripple and Noise | 20MHz 100mV or 1.0% pk-pk | | - | 200 | μο |
| Overvoltage Protection | Two-level. 1st level: Vset Tracking. 2nd level: Vmax (Latching) | 110 | | 125 | % |
| Overvoltage Protection | Straight line with hiccup activation at <30% of Vnom | 110 | | 125 | % |
| Overcurrent Protection | 5 | 110 | | 120 | 70 |
| Demote Course | See Section 4.6 | | | 0.5 | |
| Remote Sense | Max. line drop compensation. (except Xg7, Xg8) | | | 0.5 | VDC |
| Overshoot | | | | 2 | % |
| Turn-on Delay | From AC in and Global Enable / powerMod Enable XCA,XCB,XCC,XCD | | | 700 / 6 | ms |
| | From AC in and Global Enable / powermod Enable XCE | | | 1000 / 6 | ms |
| Rise Time | Monotonic | | | 5 | ms |
| Hold-up Time | For nominal output voltages at full load. XCA,XCB,XCC / XCD,XCE | 20 / 15 | | | ms |
| Output Isolation | Output to Output / Output to Chassis | 500 / 500 | | | VDC |
| GENERAL | | | | | |
| | Canditiona/Decavintion | Min | Name | Max | Units |
| Parameter | Conditions/Description | Min | Nom | Мах | |
| Isolation Voltage | Input to Output | 3000 | | | VAC |
| · · · · · · · · · · · · · · · · · · · | | 1500 | | | VAC |
| | Input to Chassis | | | | |
| Efficiency | 230VAC, 1340W @ 24V | | 90 | | % |
| Efficiency Safety Agency Approvals | 230VAC, 1340W @ 24V EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 | | 90 | | % |
| Efficiency Safety Agency Approvals Earth Leakage Current | 230VAC, 1340W @ 24V EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 250VAC, 60Hz, 25°C | | 90 | 1.5 | % mA |
| Efficiency Safety Agency Approvals Earth Leakage Current Signals | 230VAC, 1340W @ 24V EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 250VAC, 60Hz, 25°C See Section 4.9 | | | | mA |
| Efficiency Safety Agency Approvals Earth Leakage Current Signals | 230VAC, 1340W @ 24V EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 250VAC, 60Hz, 25°C See Section 4.9 Always on. Current 250mA (30mA for XCE) 500mA option available | 4.8 | 90 5.0 | 1.5 | mA |
| Efficiency Safety Agency Approvals Earth Leakage Current Signals Bias Supply | 230VAC, 1340W @ 24V EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 250VAC, 60Hz, 25°C See Section 4.9 | | | | mA |
| Efficiency Safety Agency Approvals Earth Leakage Current Signals Bias Supply | 230VAC, 1340W @ 24V EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 250VAC, 60Hz, 25°C See Section 4.9 Always on. Current 250mA (30mA for XCE) 500mA option available | | | 5.2 | mA VDC fpmh |
| Efficiency Safety Agency Approvals Earth Leakage Current Signals Bias Supply Reliability | 230VAC, 1340W @ 24V EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 250VAC, 60Hz, 25°C See Section 4.9 Always on. Current 250mA (30mA for XCE) 500mA option available Failures per million hours at 40°C and full load powerMod | | | 5.2 0.958 | mA VDC fpmh |
| Efficiency Safety Agency Approvals Earth Leakage Current Signals Bias Supply Reliability EMC | 230VAC, 1340W @ 24V EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 250VAC, 60Hz, 25°C See Section 4.9 Always on. Current 250mA (30mA for XCE) 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac | | 5.0 | 5.2 0.958 | mA VDC fpmh fpmh |
| Efficiency Safety Agency Approvals Earth Leakage Current Signals Bias Supply Reliability EMC Parameter | 230VAC, 1340W @ 24V EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 250VAC, 60Hz, 25°C See Section 4.9 Always on. Current 250mA (30mA for XCE) 500mA option available Failures per million hours at 40°C and full load powerMod | | | 5.2 0.958 | mA VDC fpmh fpmh |
| Efficiency Safety Agency Approvals Earth Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions | 230VAC, 1340W @ 24V EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 250VAC, 60Hz, 25°C See Section 4.9 Always on. Current 250mA (30mA for XCE) 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard | | 5.0 | 5.2 0.958 | mA VDC fpmh fpmh |
| Efficiency Safety Agency Approvals Earth Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions | 230VAC, 1340W @ 24V EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 250VAC, 60Hz, 25°C See Section 4.9 Always on. Current 250mA (30mA for XCE) 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac | | 5.0 | 5.2 0.958 | mA VDC fpmh fpmh |
| Efficiency Safety Agency Approvals Earth Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted | 230VAC, 1340W @ 24V EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 250VAC, 60Hz, 25°C See Section 4.9 Always on. Current 250mA (30mA for XCE) 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard | | 5.0 | 5.2 0.958 | mA VDC fpmh fpmh |
| Efficiency Safety Agency Approvals Earth Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated | 230VAC, 1340W @ 24V EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 250VAC, 60Hz, 25°C See Section 4.9 Always on. Current 250mA (30mA for XCE) 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC | | 5.0 Level | 5.2 0.958 | mA VDC fpmh fpmh |
| Efficiency Safety Agency Approvals Earth Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion | 230VAC, 1340W @ 24V EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 250VAC, 60Hz, 25°C See Section 4.9 Always on. Current 250mA (30mA for XCE) 500mA option available Failures per million hours at 40°C and full load <i>powerMod</i> See Section 4.12. <i>powerPac</i> excludes fans <i>powerPac</i> Standard EN55011, EN55022, FCC EN55011, EN55022, FCC | | 5.0 Level Level B Level B | 5.2 0.958 | mA VDC fpmh fpmh |
| Efficiency Safety Agency Approvals Earth Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion | 230VAC, 1340W @ 24V EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 250VAC, 60Hz, 25°C See Section 4.9 Always on. Current 250mA (30mA for XCE) 500mA option available Failures per million hours at 40°C and full load <i>powerMod</i> See Section 4.12. <i>powerPac</i> excludes fans <i>powerPac</i> Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A | | 5.0 Level Level B Level B Compliant | 5.2 0.958 | mA VDC fpmh fpmh |
| Efficiency Safety Agency Approvals Earth Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation | 230VAC, 1340W @ 24V EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 250VAC, 60Hz, 25°C See Section 4.9 Always on. Current 250mA (30mA for XCE) 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 | | 5.0 Level Level B Level B Compliant Compliant | 5.2 0.958 | mA VDC fpmh fpmh |
| Efficiency Safety Agency Approvals Earth Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge | 230VAC, 1340W @ 24V EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 250VAC, 60Hz, 25°C See Section 4.9 Always on. Current 250mA (30mA for XCE) 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 | | 5.0 Level B Level B Compliant Compliant Level 2 | 5.2 0.958 | mA VDC fpmh fpmh |
| Efficiency Safety Agency Approvals Earth Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity | 230VAC, 1340W @ 24V EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 250VAC, 60Hz, 25°C See Section 4.9 Always on. Current 250mA (30mA for XCE) 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 | | 5.0 Level Level B Level B Compliant Compliant Level 2 Level 3 | 5.2 0.958 | mA VDC fpmh fpmh |
| Efficiency Safety Agency Approvals Earth Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst | 230VAC, 1340W @ 24V EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 250VAC, 60Hz, 25°C See Section 4.9 Always on. Current 250mA (30mA for XCE) 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-3 EN61000-4-2 EN61000-4-3 EN61000-4-4 | | 5.0 Level Level B Level B Compliant Compliant Compliant Level 2 Level 3 Level 3 | 5.2 0.958 | mA VDC fpmh fpmh |
| Efficiency Safety Agency Approvals Earth Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges | 230VAC, 1340W @ 24V EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 250VAC, 60Hz, 25°C See Section 4.9 Always on. Current 250mA (30mA for XCE) 500mA option available Failures per million hours at 40°C and full load <i>powerMod</i> See Section 4.12. <i>powerPac</i> excludes fans <i>powerPac</i> Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-2 EN61000-4-3 EN61000-4-5 | | 5.0 5.0 Level B Level B Compliant Compliant Compliant Level 2 Level 3 Level 3 Level 3 | 5.2 0.958 | mA VDC fpmh fpmh |
| Efficiency Safety Agency Approvals Earth Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity | 230VAC, 1340W @ 24V EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 250VAC, 60Hz, 25°C See Section 4.9 Always on. Current 250mA (30mA for XCE) 500mA option available Failures per million hours at 40°C and full load power/Mod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-2 EN61000-4-3 EN61000-4-5 EN61000-4-6 | | 5.0 Level B Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 | 5.2 0.958 | mA VDC fpmh |
| Efficiency Safety Agency Approvals Earth Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips | 230VAC, 1340W @ 24V EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 250VAC, 60Hz, 25°C See Section 4.9 Always on. Current 250mA (30mA for XCE) 500mA option available Failures per million hours at 40°C and full load <i>powerMod</i> See Section 4.12. <i>powerPac</i> excludes fans <i>powerPac</i> Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-2 EN61000-4-3 EN61000-4-5 | | 5.0 5.0 Level B Level B Compliant Compliant Compliant Level 2 Level 3 Level 3 Level 3 | 5.2 0.958 | mA VDC fpmh fpmh |
| Efficiency Safety Agency Approvals Earth Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation | 230VAC, 1340W @ 24V EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 250VAC, 60Hz, 25°C See Section 4.9 Always on. Current 250mA (30mA for XCE) 500mA option available Failures per million hours at 40°C and full load power/Mod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-2 EN61000-4-3 EN61000-4-5 EN61000-4-6 | | 5.0 Level B Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 | 5.2 0.958 | mA VDC fpmh fpmh |
| Efficiency Safety Agency Approvals Earth Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips | 230VAC, 1340W @ 24V EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 250VAC, 60Hz, 25°C See Section 4.9 Always on. Current 250mA (30mA for XCE) 500mA option available Failures per million hours at 40°C and full load <i>powerMod</i> See Section 4.12. <i>powerPac</i> excludes fans <i>powerPac</i> Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-2 EN61000-4-3 EN61000-4-5 EN61000-4-6 EN61000-4-11, SEMI F47 compliant. See note 8. | 4.8 | 5.0 Level Level B Level B Compliant Compliant Level 2 Level 3 Level | 5.2 0.958 0.946 | mA VDC fpmh fpmh Units |
| Efficiency Safety Agency Approvals Earth Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter | 230VAC, 1340W @ 24V EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 250VAC, 60Hz, 25°C See Section 4.9 Always on. Current 250mA (30mA for XCE) 500mA option available Failures per million hours at 40°C and full load power/Mod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-2 EN61000-4-3 EN61000-4-5 EN61000-4-6 | 4.8 | 5.0 Level B Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 | 5.2 0.958 0.946 | mA VDC fpmh fpmh Units |
| Efficiency Safety Agency Approvals Earth Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature | 230VAC, 1340W @ 24V EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 250VAC, 60Hz, 25°C See Section 4.9 Always on. Current 250mA (30mA for XCE) 500mA option available Failures per million hours at 40°C and full load <i>powerMod</i> See Section 4.12. <i>powerPac</i> excludes fans <i>powerPac</i> Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-2 EN61000-4-3 EN61000-4-5 EN61000-4-6 EN61000-4-11, SEMI F47 compliant. See note 8. | 4.8 | 5.0 Level Level B Level B Compliant Compliant Level 2 Level 3 Level | 5.2 0.958 0.946 | mA VDC fpmh fpmh Units |
| Efficiency Safety Agency Approvals Earth Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature Storage Temperature | 230VAC, 1340W @ 24V EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 250VAC, 60Hz, 25°C See Section 4.9 Always on. Current 250mA (30mA for XCE) 500mA option available Failures per million hours at 40°C and full load power/Mod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-3 EN61000-4-5 EN61000-4-6 EN61000-4-11, SEMI F47 compliant. See note 8. | 4.8 | 5.0 Level Level B Level B Compliant Compliant Level 2 Level 3 Level | 5.2 0.958 0.946 | mA VDC fpmh fpmh Units |
| Efficiency Safety Agency Approvals Earth Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature Storage Temperature Derating | 230VAC, 1340W @ 24V EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 250VAC, 60Hz, 25°C See Section 4.9 Always on. Current 250mA (30mA for XCE) 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-6 EN61000-4-11, SEMI F47 compliant. See note 8. Conditions/Description See Section 4.11 for full temperature deratings | 4.8 4.8 | 5.0 Level Level B Level B Compliant Compliant Level 2 Level 3 Level | 5.2 0.958 0.946 | MA VDC fpmh fpmh Units Units C C C |
| Efficiency Safety Agency Approvals Earth Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature Storage Temperature | 230VAC, 1340W @ 24V EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 250VAC, 60Hz, 25°C See Section 4.9 Always on. Current 250mA (30mA for XCE) 500mA option available Failures per million hours at 40°C and full load power/Mod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-3 EN61000-4-5 EN61000-4-6 EN61000-4-11, SEMI F47 compliant. See note 8. | 4.8 | 5.0 5.0 Level B Level B Compliant Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Level 3 Compliant | 5.2 0.958 0.946 | mA VDC fpmh fpmh Units |

NOTES

1. This product is not intended for use as a stand alone unit and must be installed by qualified personnel.

2. The specifications contained herein are believed to be correct at time of publication and are subject to change without notice.

3. All specifications at nominal input, full load, 25°C unless otherwise stated.

4. XCE: 1450W peak for 10s; Duty cycle 8%. *powerMod* output power must not exceed normal ratings.

5. When powering inductive or capacitive loads, it is recommended to use a blocking diode on the output.

6. Conformal Coating option: See Sections 3.1 and 4.10 for details.

7. For section references above go to the Xgen Designers Manual.

8. SEMI F47 compliant at input voltages >160VAC. Consult Excelsys for details.





Medically Approved Ultra-high efficiency 1U size



PLUG & PLAY POWER next generation power solution

FEATURES & OPTIONS

- EN60601-1 3rd edition approved
- · Less than 300µA leakage current
- 150µA option available
- 4000VAC isolation
- Ultra high efficiency, up to 89%
- Extra low profile: 1U height (40mm)
- Plug & Play Power allows fast custom configuration
- · Individual output control signals
- All outputs fully floating
- Series / Parallel of multiple outputs
- Few electrolytic capacitors (all long life)
- 5V bias standby voltage provided
- Standard Xgen product options include: Conformal Coating, Low Acoustic Noise, Low Leakage Current, Extra Ruggedisation, Connector, Cabling & Mounting options, Thermal Signals and Reverse Fans. See Section 4.10 for more information

APPLICATIONS INCLUDE

- · Clinical diagnostic equipment
- · Medical lasers
- Dialysis equipment

MECHANICAL SPECIFICATIONS



The XV family of medically approved power supplies provides up to an incredible 1340W in an extremely compact 1U package. Providing up to 12 isolated DC outputs, the XV family employs innovative plug & play architecture allowing users to instantly configure a custom power solution in less than 5 minutes!

The XV family consists of 5 *powerPacs* ranging in power levels from 400W to 1450W peak and 7 *powerMod* DC output modules. Simply select the appropriate *powerPac* and up to 6 *powerMods* from the tables below to complete your custom power supply.

The XV family boasts an industry leading power density of 17W/in³ and ultra-high efficiencies (up to 90%). The significant system space savings and reduced heat dissipation radically simplify system design.

All configurations carry full safety agency approvals including UL60601-1, EN60601-1 3rd Edition and are CE marked.

| powerMo | ds | | | | powerPacs | | | | |
|---------|-------|------|------|------|-----------|-------|-----------|-------|-------|
| MODEL | Vmin | | Vnom | Vmax | lmax | Watts | | MODEL | Watts |
| | Vtrim | Vpot | | | | | | XVA | 400W |
| Xg1 | 1.0 | 1.5 | 2.5 | 3.6 | 50A | 125W | | XVB | 700W |
| Xg2 | 1.5 | 3.2 | 5.0 | 6.0 | 40A | 200W | \gtrsim | XVC | 1000W |
| Xg3 | 4.0 | 6.0 | 12.0 | 15.0 | 20A | 240W | × | XVD | 1200W |
| Xg4 | 8.0 | 12.0 | 24.0 | 30.0 | 10A | 240W | | XVE | 1340W |
| Xg5 | 8.0 | 28 | 48.0 | 58.0 | 6A | 288W | | | |
| Xg7 | | 5.0 | 24.0 | 28.0 | 5A | 120W | | | |
| Xg8 v1 | | 5.0 | 24.0 | 28.0 | ЗA | 72W | | | |
| V2 | | 5.0 | 24.0 | 28.0 | ЗA | 72W | | | |

Note: See diagrams on pages 34-37

*Qen*Series

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Medical

SPECIFICATION applies to configured units consisting of powerMods plugged into the appropriate powerPac

| Parameter | Conditions/Decription | Min | Nom | Max | Units |
|---|---|------------|---|------------|----------|
| Input Voltage Range | Universal Input 47-440Hz | 85 | | 264 | VAC |
| Dewer Deting | XVA:400W, XVB:700W, XVC:1000W, XVD:1200W, XVE:1340W | 120 | | 380 | VDC |
| Power Rating | See Section 4.11 for line voltage deratings | | | | |
| Input Current XVA | 85VAC in 400W out | | 7.5 | | A |
| XVB | 85VAC in 700W out | | 9.5 | | A |
| XVC, XVD | 85VAC in 850W out | | 11.5 | | A |
| XVC, XVD XVE | 85VAC in 1000W out | | 14.0 | | A |
| Inrush Current | 230VAC @ 25°C | | 14.0 | 25 | A |
| Undervoltage Lockout | Shutdown | 65 | | 74 | VAC |
| Fusing XVA | 250V | 00 | F8A HRC | 74 | VAC |
| XVB | 250V | | F10A HRC | | |
| XVC, XVD | 250V | | F12A HRC | | |
| XVC, XVD XVE | 250V | | F15A HRC | | |
| | 2001 | | 110/(111(0 | | |
| OUTPUT | | | | | |
| Parameter | Conditions/Description | Min | Nom | Max | Units |
| powerMod Power | As per powerMod table | | | | |
| Output Adjustment Range | Manual: Multi-turn potentiometer. As per powerMod table | | | | |
| | Electronic: See Section 4.6 | | | | |
| Minimum Load | | | 0 | | Α |
| Line Regulation | For ±10% change from nominal line | | | ±0.1 | % |
| Load & Cross Regulation | For 25% to 75% load change | | | ±0.2 | % |
| Transient Response | For 25% to 75% load change Voltage Deviation | | | 10 | % |
| • • • • | Settling Time | | | 250 | μs |
| Ripple and Noise | 20MHz 100mV or 1.0% pk-pk | | | | |
| Overvoltage Protection | Two-level. 1st level: Vset Tracking. 2nd level: Vmax (Latching) | 110 | | 125 | % |
| Overcurrent Protection | Straight line with hiccup activation at <30% of Vnom | 110 | | 120 | % |
| | See Section 4.6 | | | | |
| Remote Sense | Max. line drop compensation. (except Xg7, Xg8) | | | 0.5 | VDC |
| Overshoot | · · · · · · · · · · · · · · · · · · · | | | 2 | % |
| Turn-on Delay | From AC in and Global Enable / powerMod Enable XVA,XVB,XVC,XVD | | | 700 / 6 | ms |
| · · · · · · · · · · · · · · · · · · · | From AC in and Global Enable / powerMod Enable XVG, XVB, | | | 1000 / 6 | ms |
| Rise Time | Monotonic | | | 5 | ms |
| Hold-up Time | For nominal output voltages at full load. XVA,XVB,XVC / XVD,XVE | 20 / 15 | | - | ms |
| Output Isolation | Output to Output / Output to Chassis | 500 / 500 | | | VDC |
| • | · · · · · · · · · · · · · · · · · · · | | 1 | | |
| GENERAL | | | | | |
| Parameter | Conditions/Description | Min | Nom | Max | Units |
| Isolation Voltage | Input to Output | 4000 | | | VAC |
| | Input to Chassis | 1500 | | | VAC |
| Efficiency | 230VAC, 1340W @ 24V | | 90 | | % |
| Safety Agency Approvals | EN60601-1, UL2601-1, CSA601-1 UL File No. E230761 | | | | |
| Leakage Current | 250VAC, 60Hz, 25°C | | | 300 | μA |
| | 250VAC, 60Hz, 25°C Option 04 | | | 150 | μA |
| Signals | See Section 4.9 | | | | |
| Bias Supply | Always on. Current 250mA. (30mA for XVE) 500mA option available | 4.8 | 5.0 | 5.2 | VDC |
| Reliability | Failures per million hours at 40°C and full load powerMod | 1.0 | 0.0 | 0.958 | fpmh |
| | See Section 4.12. powerPac excludes fans powerPac | | | 0.936 | fpmh |
| | | | | 0.010 | ipinn |
| EMC | | | | | |
| Parameter | Standard | | Level | | Units |
| | | | | | |
| Emissions | | | | | |
| | EN55011, EN55022, FCC | | Level B | | |
| Emissions | EN55011, EN55022, FCC EN55011, EN55022, FCC | | Level B Level B | | |
| Emissions Conducted | | | | | |
| Emissions Conducted Radiated Harmonic Distortion | EN55011, EN55022, FCC | | Level B | | |
| Emissions Conducted Radiated | EN55011, EN55022, FCC EN61000-3-2 Class A | | Level B Compliant | | |
| Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation | EN55011, EN55022, FCC EN61000-3-2 Class A | | Level B Compliant | | |
| Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge | EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 | | Level B Compliant Compliant | | |
| Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity | EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 | | Level B Compliant Compliant Level 2 | | |
| Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst | EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 EN61000-4-4 | | Level B Compliant Compliant Level 2 Level 3 | | |
| Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges | EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 | | Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 | | |
| Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity | EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 | | Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 | | |
| Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips | EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 | | Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 | | |
| Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips | EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 | | Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 | | |
| Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips | EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 | Min | Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 | Max | Units |
| Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL | EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-11 | Min -20 | Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | Max +70 | Units |
| Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter | EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-11 | | Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | | |
| Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature Storage Temperature | EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-11 | -20 | Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | +70 | °C |
| Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature Storage Temperature Derating | EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-5 EN61000-4-6 EN61000-4-11 Conditions/Description | -20 | Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | +70 | °C |
| Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature | EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-5 EN61000-4-6 EN61000-4-11 Conditions/Description See Section 4.11 for full temperature deratings | -20 -40 | Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | +70 +85 | °C °C |

NOTES 1. This product is not intended for use as a stand alone unit and must be installed by qualified personnel.

2. The specifications contained herein are believed to be correct at time of publication and are subject to change without notice.

3. All specifications at nominal input, full load, 25°C unless otherwise stated.

4. XVE: 1450W peak for 10s; Duty cycle 8%. powerMod output power must not exceed normal ratings.

5. When powering inductive or capacitive loads, it is recommended to use a blocking diode on the output.

6. For section references above go to the Xgen Designers Manual.





Q

Low Acoustic Noise Power Supply Ultra-high efficiency 1U size

PLUG & PLAY POWER next generation power solution

FEATURES & OPTIONS

- Low Acoustic noise 42.7dBA
- Ultra high efficiency, up to 89%
- Extra low profile: 1U height (40mm)Plug & Play Power allows fast custom
- configuration
- Individual output control signals
- All outputs fully floating
- Series / Parallel of multiple outputs
- Few electrolytic capacitors (all long life)
- Visual LED indicators
- 5V bias standby voltage provided
- SEMI F47 Compliant
- Standard Xgen product options include: Conformal Coating, Low Acoustic Noise, Low Leakage Current, Extra Ruggedisation, Connector, Cabling & Mounting options, Thermal Signals and Reverse Fans. See Section 4.10 for more information

APPLICATIONS INCLUDE

- Audio Equipment
- Test and measurement
- Telecommunications

EFFICIENCY (typical)



The XQ family of low acoustic noise power supplies provides up to 1200W in an extremely compact 1U x 260mm x 127mm package. Boasting industry leading power density of 15W/in³ and efficiencies of up to 90%, the XQ family employs an innovative plug & play architecture that allows users to instantly configure a custom power solution in less than 5 minutes!

Ideal for acoustic sensitive applications such as audio applications, the XQ family provides unmatched efficiency and high power density, made possible through the combination of low loss technologies and the best field-proven technologies in planar magnetics and surface mount electronics.

The XQ family consists of 3 *powerPac* models ranging in power levels from 400W to 1200W. each model may be populated with up to 6 *powerMods* selected from the table of *powerMods* shown below.

All configurations carry full safety agency approvals, UL60950, EN60950 and are CE marked.

| 1 | powerMo | ds | | powerF | acs | | | | |
|---|---------------|-------|-------------------------|--------|------|-------|------|----------|-----|
| | MODEL Vmin | | ODEL Vmin Vnom Vmax Ima | | lmax | Watts | | MODEL | |
| , | | Vtrim | Vpot | | | | | | XQA |
| | Xg1 | 1.0 | 1.5 | 2.5 | 3.6 | 50A | 125W | XQ | XQB |
| | Xg2 | 1.5 | 3.2 | 5.0 | 6.0 | 40A | 200W | \times | XQC |
| | Xg3 | 4.0 | 6.0 | 12.0 | 15.0 | 20A | 240W | | XQU |
| | Xg4 | 8.0 | 12.0 | 24.0 | 30.0 | 10A | 240W | | |
| | Xg5 | 8.0 | 28 | 48.0 | 58.0 | 6A | 288W | | |
| | Xg7 | | 5.0 | 24.0 | 28.0 | 5A | 120W | | |
| | Xg8 V1 | | 5.0 | 24.0 | 28.0 | 3A | 72W | | |
| | V2 | | 5.0 | 24.0 | 28.0 | 3A | 72W | | |

MECHANICAL SPECIFICATIONS

Note: See diagrams on pages 34-37

Watts

400W

900W

1200W

GenSeries



vided All configurations carry full safety



Low Acoustic Noise

SPECIFICATION applies to configured units consisting of powerMods plugged into the appropriate powerPac

| Undervoltage Lockout | Conditions/Description Universal Input 47-440Hz XQA:600W, XQB:900W, XQC:1200W See Section 4.11 for line voltage deratings 85VAC in 400W out 85VAC in 850W out | Min 85 120 | Nom | Max 264 380 | Units VAC VDC |
|--|--|----------------------|-----------|-------------------|---------------------|
| Power Rating Input Current XQA XQB XQC Inrush Current Undervoltage Lockout Fusing XQA XQB | XQA:600W, XQB:900W, XQC:1200W See Section 4.11 for line voltage deratings 85VAC in 400W out | | | | - |
| Input Current XQA XQB XQC Inrush Current Undervoltage Lockout Fusing XQA XQB | See Section 4.11 for line voltage deratings 85VAC in 400W out | 120 | | 380 | VDC |
| Input Current XQA XQB XQC Inrush Current Undervoltage Lockout Fusing XQA XQB | See Section 4.11 for line voltage deratings 85VAC in 400W out | | | | |
| XQB XQC Inrush Current Undervoltage Lockout Fusing XQA XQB | 85VAC in 400W out | | 1 | | |
| XQB XQC Inrush Current Undervoltage Lockout Fusing XQA XQB | | | | | |
| XQC Inrush Current Undervoltage Lockout Fusing XQA XQB | 85\/AC in 850\// out | | 7.5 | | A |
| Inrush Current Undervoltage Lockout Fusing XQA XQB | | | 11.5 | | A |
| Undervoltage Lockout Fusing XQA XQB | 85VACin 850W out | | 11.5 | | A |
| Fusing XQA XQB | 230VAC @ 25°C | | | 25 | A |
| XQB | Shutdown | 65 | | 74 | VAC |
| | 250V | | F8A HRC | | |
| XQC | 250V | | F12A HRC | | |
| | 250V | | F12A HRC | | |
| | | | | | |
| OUTPUT | | A la | News | N | |
| Parameter | Conditions/Description | Min | Nom | Max | Units |
| powerMod Power | As per powerMod table | | | | |
| Output Adjustment Range | Manual: Multi-turn potentiometer. As per <i>powerMod</i> table Electronic: See Section 4.6 | | | | |
| Minimum Load | | | 0 | | A |
| Line Regulation | For ±10% change from nominal line | | ļ | ±0.1 | % |
| Load & Cross Regulation | For 25% to 75% load change | | | ±0.2 | % |
| Transient Response | For 25% to 75% load change Voltage Deviation | | | 10 | % |
| | Settling Time | | | 250 | μs |
| Ripple and Noise | 20MHz 100mV or 1.0% pk-pk | | | | |
| Overvoltage Protection | 1st level: Vset Tracking. 2nd level: Vmax (Latching) | 110 | | 125 | % |
| Overcurrent Protection | Straight line with hiccup activation at <30% of Vnom | 110 | | 120 | % |
| Pamata Saraa | See Section 4.6 | | | 0.5 | |
| Remote Sense | Max. line drop compensation. (except Xg7, Xg8) | | | 0.5 2 | VDC % |
| Overshoot Turn-on Delay | From AC in and Global Enable / powerMod Enable | | | 2 700 / 6 | ms |
| Rise Time | Monotonic | | | 70076 5 | _ |
| | | 20 / 45 | | 5 | ms |
| Hold-up Time | For nominal output voltages at full load. XQA, XQB/XQC | 20 / 15 500 / 500 | | <u> </u> | ms VDC |
| Output Isolation | Output to Output / Output to Chassis | 500 / 500 | | | VDC |
| GENERAL | | | | | |
| Parameter | Conditions/Description | Min | Nom | Max | Units |
| Isolation Voltage | Input to Output | 3000 | | | VAC |
| Ū | Input to Chassis | 1500 | | | VAC |
| Efficiency | 230VAC, 1200W @ 24V | | 90 | | % |
| Safety Agency Approvals | EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 | | | | |
| Leakage Current | 250VAC, 60Hz, 25°C | | | 1.5 | mA |
| Signals | See Section 4.9 | | | | |
| Bias Supply | Always on. Current 250mA. 500mA option available | 4.8 | 5.0 | 5.2 | VDC |
| Reliability | Failures per million hours at 40°C and full load powerMod | -T.U | 5.0 | 0.958 | fpmh |
| | See Section 4.12. powerPac excludes fans powerPac | | | 0.938 | fpmh |
| | | | | 0.0-0 | ipinin |
| EMC | | | | | |
| Parameter | Standard | | Level | | Units |
| Emissions | | | | | |
| Conducted | EN55011, EN55022, FCC | | Level B | | |
| Radiated | EN55011, EN55022, FCC | | Level B | | |
| Harmonic Distortion | EN61000-3-2 Class A | | Compliant | | |
| Flicker & Fluctuation | EN61000-3-3 | | Compliant | | |
| Immunity | | | | | |
| Electrostatic Discharge | EN61000-4-2 | | Level 2 | | |
| Radiated Immunity | EN61000-4-3 | | Level 3 | | |
| Fast Transients-Burst | EN61000-4-4 | | Level 3 | | |
| Input Line Surges | EN61000-4-5 | | Level 3 | | |
| Conducted Immunity | EN61000-4-6 | | Level 3 | | |
| Voltage Dips | EN61000-4-11, SEMI F47 compliant. See note 7. | | Compliant | | |
| ENVIRONMENTAL | | | | | |
| | Conditions/Description | Mire | Nom | Max | Lindia |
| Parameter | Conditions/Description | Min | Nom | Max | Units |
| Operating Temperature | | -20 | | +70 | °C |
| Storage Temperature | | -40 | | +85 | °C |
| Derating | See Section 4.11 for full temperature deratings | | | | A · - · |
| Relative Humidity | Non-condensing | 5 | | 95 | %RH |
| Acoustic Noise | Measured from distance of 1m | | 42.7 | | dBA |
| Shock | 3000 Bumps, 10G (16ms) half sine 1.5G | 10 | | | |

NOTES

- 1. This product is not intended for use as a stand alone unit and must be installed by qualified personnel.
- 2. The specifications contained herein are believed to be correct at time of publication and are subject to change without notice.
- 3. All specifications at nominal input, full load, 25°C unless otherwise stated.
- 4. When powering inductive or capacitive loads, it is recommended to use a blocking diode on the output.
- 5. Conformal Coating option: See Sections 3.1 and 4.10 for details.
- For section references above go to the Xgen Designers Manual.
 SEMI F47 compliant at input voltages >160VAC. Consult Excelsys for details.





Medical Power Supply

Low Acoustic Noise 1U size

PLUG & PLAY POWER next generation power solution

FEATURES & OPTIONS

- Low Acoustic noise 42.7dBA
- EN60601-1 3rd edition Approved
- Less than 300µA leakage current
- 150µA option available
- 4000VAC isolation
- Ultra high efficiency, up to 89%
- Extra low profile: 1U height (40mm)
- Plug & Play Power allows fast custom configuration
- · Individual output control signals
- · All outputs fully floating
- Series / Parallel of multiple outputs
- Few electrolytic capacitors (all long life)
- 5V bias standby voltage provided
- Standard Xgen product options include: Conformal Coating, Low Acoustic Noise, Low Leakage Current, Extra Ruggedisation, Connector, Cabling & Mounting options, Thermal Signals and Reverse Fans. See Section 4.10 for more information

APPLICATIONS INCLUDE

- · Clinical diagnostic equipment
- Medical lasers
- · Dialysis equipment

The XZ family of low acoustic noise medically approved power supplies provides up to 1200W in an extremely compact 1U x 260mm x 127mm package. Boasting industry leading power density of 15W/in³ and efficiencies of up to 90%, the XZ family employs an innovative plug & play architecture that allows users to instantly configure a custom power solution in less than 5 minutes!

Ideal for acoustic sensitive medical applications the XZ family provides unmatched efficiency and high power density, made possible through the combination of low loss technologies and the best field-proven technologies in planar magnetics and surface mount electronics.

The XZ family consists of 3 *powerPac* models ranging in power levels from 400W to 1200W. Each model may be populated with up to 6 *powerMods* selected from the table of *powerMods* shown below.

All configurations carry full safety agency approvals, UL60601-1, EN60601-1 3rd Edition and are CE marked.

| powerMo | ods | | | | powerPacs | | | | |
|---------|-------|------|------|------|-----------|-------|----------|-------|-------|
| MODEL | Vmin | | Vnom | Vmax | Imax | Watts | | MODEL | Watts |
| | Vtrim | Vpot | | | | | | XZA | 400W |
| Xg1 | 1.0 | 1.5 | 2.5 | 3.6 | 41.6A | 104W | N | XZB | 900W |
| Xg2 | 1.5 | 3.2 | 5.0 | 6.0 | 33.2A | 166W | \times | | |
| Xg3 | 4.0 | 6.0 | 12.0 | 15.0 | 16.67A | 200W | | XZC | 1200W |
| Xg4 | 8.0 | 12.0 | 24.0 | 30.0 | 8.33A | 200W | | | |
| Xg5 | 8.0 | 28 | 48.0 | 58.0 | 5A | 240W | | | |
| Xg7 | | 5.0 | 24.0 | 28.0 | 4.17A | 100W | | | |
| Xg8 v1 | | 5.0 | 24.0 | 28.0 | 2.5A | 60W | | | |
| V2 | | 5.0 | 24.0 | 28.0 | 2.5A | 60W | | | |
| | | | | | | | | | |

MECHANICAL SPECIFICATIONS

- -

Note: See diagrams on pages 34-37

QenSeries



EFFICIENCY (typical)



excelsys

Medical Low Acoustic Noise

SPECIFICATION applies to configured units consisting of powerMods plugged into the appropriate powerPac

| INPUT Perometer | Conditiona/Decertificm | Mire | Nom | Mex | Lint |
|--|---|--|--|-------------------------------------|--|
| Parameter | Conditions/Description | Min | Nom | Max | Units |
| nput Voltage Range | Universal Input 47-440Hz. | 85 | | 264 | VAC |
| Power Poting | | 120 | | 380 | VDC |
| Power Rating | XZA:600W, XZB:900W, XZC:1200W | | | | |
| Innut Cument XZA | See Section 4.11 for line voltage deratings 85VAC in 400W out | | 7.5 | | |
| Input Current XZA | | | - | | A |
| XZB | 85VAC in 850W out | | 11.5 | | A |
| XZC | 85VAC in 850W out | | 11.5 | | A |
| Inrush Current | 230VAC @ 25°C | | | 25 | A |
| Undervoltage Lockout | Shutdown | 65 | | 74 | VAC |
| Fusing XZA | 250V | | F8A HRC | | |
| XZB | 250V | | F12A HRC | | |
| XZC | 250V | | F12A HRC | | |
| OUTPUT | | | | | |
| Parameter | Conditions/Description | Min | Nom | Max | Units |
| | | IVIIN | Nom | Wax | Units |
| powerMod Power | As per powerMod table | | | | |
| Output Adjustment Range | Manual: Multi-turn potentiometer. As per <i>powerMod</i> table | | | | |
| | Electronic: See Section 4.6 | | - | | - |
| Minimum Load | | | 0 | | A |
| Line Regulation | For ±10% change from nominal line | | | ±0.1 | % |
| Load & Cross Regulation | For 25% to 75% load change | | | ±0.2 | % |
| Transient Response | For 25% to 75% load change Voltage Deviation | | | 10 | % |
| | Settling Time | | | 250 | μs |
| Ripple and Noise | 20MHz 100mV or 1.0% pk-pk | | | | _ |
| Overvoltage Protection | 1st level: Vset Tracking. 2nd level: Vmax (Latching) | 110 | | 125 | % |
| Overcurrent Protection | Straight line with hiccup activation at <30% of Vnom | 110 | | 120 | % |
| | See Section 4.6 | | | | |
| Remote Sense | Max. line drop compensation. (except Xg7, Xg8) | | | 0.5 | VDC |
| Overshoot | | | | 2 | % |
| Turn-on Delay | From AC in and Global Enable / powerMod Enable | | | 700 / 6 | ms |
| Rise Time | Monotonic | | | 5 | ms |
| Hold-up Time | For nominal output voltages at full load. XZA, XXB/XZC | 20 / 15 | | | ms |
| Output Isolation | Output to Output / Output to Chassis | 500 / 500 | | | VDC |
| GENERAL | | | | | |
| | | | | | Units |
| | | | | | |
| | Conditions/Description | Min | Nom | Max | |
| | Input to Output | 4000 | Nom | IVIAX | VAC |
| Isolation Voltage | Input to Output Input to Chassis | | | Max | VAC VAC |
| Parameter Isolation Voltage Efficiency | Input to Output Input to Chassis 230VAC, 1200W @ 24V | 4000 | 90 | | VAC |
| Isolation Voltage Efficiency Safety Agency Approvals | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 | 4000 | | | VAC VAC |
| Isolation Voltage Efficiency Safety Agency Approvals | Input to Output Input to Chassis 230VAC, 1200W @ 24V | 4000 | | 300 | VAC VAC |
| Isolation Voltage Efficiency Safety Agency Approvals | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 | 4000 | | | VAC VAC % |
| Isolation Voltage | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C | 4000 | | 300 | VAC VAC % |
| Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available | 4000 | | 300 | VAC VAC % |
| Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 | 4000 1500 | 90 | 300 150 | VAC VAC % µA µA |
| Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod | 4000 1500 | 90 | 300 150 5.2 | VAC VAC % μΑ μΑ VDC |
| Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod | 4000 1500 | 90 | 300 150 5.2 0.958 | VAC VAC % μΑ μΑ ν VDC fpmh |
| Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac | 4000 1500 | 90 | 300 150 5.2 0.958 | VAC VAC % μΑ μΑ VDC fpmh fpmh |
| Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod | 4000 1500 | 90 | 300 150 5.2 0.958 | VAC VAC % μΑ μΑ VDC fpmh fpmh |
| Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard | 4000 1500 | 90 5.0 Level | 300 150 5.2 0.958 | VAC VAC % μΑ μΑ VDC fpmh fpmh |
| Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC | 4000 1500 | 90 5.0 Level Level B | 300 150 5.2 0.958 | VAC VAC % μΑ μΑ VDC fpmh fpmh |
| Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC | 4000 1500 | 90 5.0 Level B Level B | 300 150 5.2 0.958 | VAC VAC % μΑ μΑ VDC fpmh fpmh |
| Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A | 4000 1500 | 90 5.0 Level Level B Level B Level B | 300 150 5.2 0.958 | VAC VAC % μΑ μΑ VDC fpmh fpmh |
| Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC | 4000 1500 | 90 5.0 Level B Level B | 300 150 5.2 0.958 | VAC VAC % μΑ μΑ VDC fpmh fpmh |
| Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A | 4000 1500 | 90 5.0 Level Level B Level B Level B | 300 150 5.2 0.958 | VAC VAC % μΑ μΑ VDC fpmh fpmh |
| Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN50100-3-2 Class A | 4000 1500 | 90 5.0 Level Level B Level B Level B | 300 150 5.2 0.958 | VAC VAC % μΑ μΑ VDC fpmh fpmh |
| Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 | 4000 1500 | 90 5.0 Level B Level B Level B Compliant Compliant | 300 150 5.2 0.958 | VAC VAC % μΑ μΑ VDC fpmh fpmh |
| Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 | 4000 1500 | 90 5.0 Level B Level B Level B Compliant Compliant Level 2 | 300 150 5.2 0.958 | VAC VAC % μΑ μΑ μΑ VDC fpmh |
| Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-3 EN61000-4-4 | 4000 1500 | 90 5.0 Level B Level B Level B Compliant Compliant Level 2 Level 3 Level 3 | 300 150 5.2 0.958 | VAC VAC % μΑ μΑ VDC fpmh fpmh |
| Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-2 EN61000-4-3 EN61000-4-5 | 4000 1500 | 90 5.0 Level B Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 | 300 150 5.2 0.958 | VAC VAC % μΑ μΑ VDC fpmh fpmh |
| Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-2 EN61000-4-3 EN61000-4-3 EN61000-4-5 EN61000-4-6 | 4000 1500 | 90 5.0 Level B Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 | 300 150 5.2 0.958 | VAC VAC % μΑ μΑ VDC fpmh fpmh |
| Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-2 EN61000-4-3 EN61000-4-5 | 4000 1500 | 90 5.0 Level B Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 | 300 150 5.2 0.958 | VAC VAC % μΑ μΑ VDC fpmh fpmh |
| Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-3 EN61000-4-3 EN61000-4-5 EN61000-4-6 EN61000-4-11 | 4000 1500 4.8 4.8 | 90 5.0 Level B Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 | 300 150 5.2 0.958 0.946 | VAC VAC % µA VDC fpmh fpmh Units |
| Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-2 EN61000-4-3 EN61000-4-3 EN61000-4-5 EN61000-4-6 | 4000 1500 | 90 5.0 Level B Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 | 300 150 5.2 0.958 | VAC VAC % μΑ μΑ VDC fpmh fpmh |
| Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-3 EN61000-4-3 EN61000-4-5 EN61000-4-6 EN61000-4-11 | 4000 1500 4.8 4.8 | 90 5.0 Level B Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | 300 150 5.2 0.958 0.946 | VAC VAC % µA VDC fpmh fpmh Units |
| Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-3 EN61000-4-3 EN61000-4-5 EN61000-4-6 EN61000-4-11 | 4000 1500 4.8 4.8 4.8 | 90 5.0 Level B Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | 300 150 5.2 0.958 0.946 | VAC VAC VAC VDC fpmh fpmh Units |
| Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature Storage Temperature | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-11 Conditions/Description | 4000 1500 4.8 4.8 | 90 5.0 Level B Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | 300 150 5.2 0.958 0.946 | VAC VAC VAC VDC fpmh fpmh Units |
| Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Inmunity Electrostatic Discharge Radiated Immunity Electrostatic Discharge Conducted Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature Storage Temperature Derating | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-3 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-6 EN61000-4-11 Conditions/Description See Section 4.11 for full temperature deratings | 4000 1500 4.8 4.8 4.8 4.8 4.8 4.8 4.8 4.8 | 90 5.0 Level B Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | 300 150 5.2 0.958 0.946 | VAC VAC VAC VDC fpmh fpmh Units Units |
| Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature Storage Temperature Derating Relative Humidity | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-2 EN61000-4-5 EN61000-4-5 EN61000-4-6 EN61000-4-11 Conditions/Description See Section 4.11 for full temperature deratings Non-condensing | 4000 1500 4.8 4.8 | 90 5.0 Level B Level B Level B Compliant Compliant Compliant Level 3 Level 3 L | 300 150 5.2 0.958 0.946 | VAC VAC % µA µA VDC fpmh fpmh Units Units |
| Isolation Voltage Efficiency Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature | Input to Output Input to Chassis 230VAC, 1200W @ 24V EN60601-1, UL60601-1 3rd Edition, CSA601-1 UL File no. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C Option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-3 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-6 EN61000-4-11 Conditions/Description See Section 4.11 for full temperature deratings | 4000 1500 4.8 4.8 4.8 4.8 4.8 4.8 4.8 4.8 | 90 5.0 Level B Level B Level B Compliant Compliant Compliant Level 3 Level 3 Level 3 Level 3 Compliant | 300 150 5.2 0.958 0.946 | VAC VAC VAC VDC fpmh fpmh Units Units |

NOTES

1. This product is not intended for use as a stand alone unit and must be installed by qualified personnel.

2. The specifications contained herein are believed to be correct at time of publication and are subject to change without notice.

3. All specifications at nominal input, full load, 25°C unless otherwise stated.

4. See Xgen Designers Manual for detailed power ratings.

5. When powering inductive or capacitive loads, it is recommended to use a blocking diode on the output.

6. For section references above go to the Xgen Designers Manual.



Ultra Low Noise Power Supply Ultra-high efficiency 1U size



Ultra Low Noise

PLUG & PLAY POWER next generation power solution

FEATURES & OPTIONS

- Low Acoustic noise 38.3dBA
- Ultra high efficiency, up to 89%
- Extra low profile: 1U height (40mm)
- Plug & Play Power allows fast custom configuration
- Individual output control signals
- All outputs fully floating
- Series / Parallel of multiple outputs
- Few electrolytic capacitors (all long life)
- Visual LED indicators
- 5V bias standby voltage provided
- Standard Xgen product options include: Conformal Coating, Low Acoustic Noise, Low Leakage Current, Extra Ruggedisation, Connector, Cabling & Mounting options, Thermal Signals and Reverse Fans. See Section 4.10 for more information

APPLICATIONS INCLUDE

- · Audio Equipment
- Test and measurement
- Telecommunications
- For Medical applications, See XW

genseries

The XB family of Ultra Low Noise power supplies provides up to 800W in an extremely compact 1U x 260mm x 127mm package. With efficiencies of up to 90%, the XB family employs an innovative plug & play architecture that allows users to instantly configure a custom power solution in less than 5 minutes!

Ideal for acoustic sensitive applications such as audio applications, the XB family provides unmatched efficiency and high power density, made possible through the combination of low loss technologies and the best field-proven technologies in planar magnetics and surface mount electronics.

The XB family consists of 3 *powerPac* models ranging in power levels from 400W to 800W. Each model may be populated with up to 6 *powerMods* selected from the table of *powerMods* shown below.

All configurations carry full safety agency approvals, UL60950, EN60950 and are CE marked.

| powerMods | | | | | | | | | | |
|-----------|-------------|-------------|------|------|--------|-------|--|--|--|--|
| MODEL | Vr Vtrim | nin Vpot | Vnom | Vmax | lmax | Watts | | | | |
| Xg1 | 1.0 | 1.5 | 2.5 | 3.6 | 41.6A | 104W | | | | |
| Xg2 | 1.5 | 3.2 | 5.0 | 6.0 | 33.2A | 166W | | | | |
| Xg3 | 4.0 | 6.0 | 12.0 | 15.0 | 16.67A | 200W | | | | |
| Xg4 | 8.0 | 12.0 | 24.0 | 30.0 | 8.33A | 200W | | | | |
| Xg5 | 8.0 | 28 | 48.0 | 58.0 | 5A | 240W | | | | |
| Xg7 | | 5.0 | 24.0 | 28.0 | 4.17A | 100W | | | | |
| Xg8 v1 | | 5.0 | 24.0 | 28.0 | 2.5A | 60W | | | | |
| V2 | | 5.0 | 24.0 | 28.0 | 2.5A | 60W | | | | |

powerPacs

| powerr acs | | | | | | |
|------------|-------|-------|--|--|--|--|
| | MODEL | Watts | | | | |
| | XBA | 400W | | | | |
| n S | XBB | 600W | | | | |
| | XBC | 800W | | | | |

powerMod Maximum Power Outputs (W) have been derated to operate with XB range of Ultra Low-Noise Power Supplies. See Section 4.11 Xgen Designers' Manual for full derating details.

MECHANICAL SPECIFICATIONS

excelsys



EFFICIENCY (typical)



Ultra Low Noise

SPECIFICATION applies to configured units consisting of powerMods plugged into the appropriate powerPac

| INPUT | | | | | |
|---|---|------------|---|------------|-----------------|
| Parameter | Conditions/Description | Min | Nom | Max | Units |
| Input Voltage Range | Universal Input 47-440Hz. | 85 | | 264 | VAC |
| | | 120 | | 380 | VDC |
| Power Rating | XBA:400W, XBB:600W, XBC:800W | | | | |
| | See Section 4.11 for line voltage deratings | | 7.5 | | • |
| Input Current XBA | 85VAC in 400W out | | 7.5 | | A |
| XBB | 85VAC in 600W out | | 9.5 | | A |
| XBC Inrush Current | 85VAC in 625W out | | 11.5 | 25 | A |
| | 230VAC @ 25°C Shutdown | 65 | | 25 74 | A VAC |
| Undervoltage Lockout | | 60 | F8A HRC | 74 | VAC |
| Fusing XBA XBB | 250V 250V | | F10A HRC | | |
| XBC | 250V | | F10A HRC | | |
| ABC | 2301 | | TIZATIKO | | |
| OUTPUT | | | | | |
| Parameter | Conditions/Description | Min | Nom | Max | Units |
| powerMod Power | As per <i>powerMod</i> table | | | | - Office |
| Output Adjustment Range | Manual: Multi-turn potentiometer. As per <i>powerMod</i> table | | | | |
| Output Aujustment Kange | Electronic: See Section 4.6 | | | | |
| Minimum Load | | | 0 | | A |
| Line Regulation | For ±10% change from nominal line | | | ±0.1 | % |
| Load & Cross Regulation | For 25% to 75% load change | | | ±0.1 | % |
| Transient Response | For 25% to 75% load change Voltage Deviation | | | 10.2 | % |
| | Settling Time | | | 250 | μs |
| Ripple and Noise | 20MHz 100mV or 1.0% pk-pk | | | | - ⁴⁰ |
| Overvoltage Protection | 1st level: Vset Tracking. 2nd level: Vmax (Latching) | 110 | | 125 | % |
| Overcurrent Protection | Straight line with hiccup activation at <30% of Vnom | 110 | | 120 | % |
| | See Section 4.6 | | | - | |
| Remote Sense | Max. line drop compensation. (except Xg7, Xg8) | | | 0.5 | VDC |
| Overshoot | | | | 2 | % |
| Turn-on Delay | From AC in and Global Enable / powerMod Enable | | | 700 / 6 | ms |
| Rise Time | Monotonic | | | 5 | ms |
| Hold-up Time | For nominal output voltages at full load | 20 | | | ms |
| Output Isolation | Output to Output / Output to Chassis | 500 / 500 | | | VDC |
| GENERAL | | | | | |
| | | | | | |
| Parameter | Conditions/Description | Min | Nom | Max | Units |
| Isolation Voltage | Input to Output | 3000 | | | VAC |
| | Input to Chassis | 1500 | | | VAC |
| Efficiency | 230VAC, 800W @ 24V | | 90 | | % |
| Safety Agency Approvals | EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 | | | 1.5 | • |
| Leakage Current | 250VAC, 60Hz, 25°C | | | 1.5 | mA |
| Signals | See Section 4.9 | 4.0 | 5.0 | 5.0 |) (D.O. |
| Bias Supply | Always on. Current 250mA. 500mA option available | 4.8 | 5.0 | 5.2 | VDC |
| Reliability | Failures per million hours at 40°C and full load powerMod | | | 0.958 | fpmh |
| | See Section 4.12. <i>powerPac</i> excludes fans <i>powerPac</i> | | | 0.946 | fpmh |
| EMC | | | | | |
| Parameter | Standard | | Level | | Units |
| Emissions | | | | | |
| Conducted | EN55011, EN55022, FCC | | Level B | | |
| Radiated | EN55011, EN55022, FCC | | Level B | | |
| Harmonic Distortion | EN61000-3-2 Class A | | Compliant | 1 | |
| Flicker & Fluctuation | EN61000-3-3 | | Compliant | | |
| | | | | | |
| Immunity | | | Level 2 | | |
| | EN61000-4-2 | | LEVELZ | 1 | |
| Immunity Electrostatic Discharge Radiated Immunity | EN61000-4-2 EN61000-4-3 | | Level 3 | | |
| Electrostatic Discharge | | | | | |
| Electrostatic Discharge Radiated Immunity Fast Transients-Burst | EN61000-4-3 | | Level 3 | | |
| Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges | EN61000-4-3 EN61000-4-4 | | Level 3 Level 3 | | |
| Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity | EN61000-4-3 EN61000-4-4 EN61000-4-5 | | Level 3 Level 3 Level 3 | | |
| Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips | EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 | | Level 3 Level 3 Level 3 Level 3 | | |
| Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL | EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-11 | | Level 3 Level 3 Level 3 Level 3 Compliant | | |
| Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter | EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 | Min | Level 3 Level 3 Level 3 Level 3 | Мах | Units |
| Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature | EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-11 | -20 | Level 3 Level 3 Level 3 Level 3 Compliant | +70 | °C |
| Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature Storage Temperature | EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-11 Conditions/Description | | Level 3 Level 3 Level 3 Level 3 Compliant | | |
| Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature Storage Temperature Derating | EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-11 Conditions/Description See Section 4.11 for full temperature deratings | -20 -40 | Level 3 Level 3 Level 3 Level 3 Compliant | +70 +85 | 0° 0° |
| Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature Storage Temperature Derating Relative Humidity | EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-11 Conditions/Description See Section 4.11 for full temperature deratings Non-condensing | -20 | Level 3 Level 3 Level 3 Level 3 Compliant | +70 | °C °C |
| Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature Storage Temperature Derating | EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-11 Conditions/Description See Section 4.11 for full temperature deratings | -20 -40 | Level 3 Level 3 Level 3 Level 3 Compliant | +70 +85 | 0° 0° |

NOTES

- 1. This product is not intended for use as a stand alone unit and must be installed by qualified personnel.
- 2. The specifications contained herein are believed to be correct at time of publication and are subject to change without notice.
- 3. All specifications at nominal input, full load, 25°C unless otherwise stated.
- 4. When powering inductive or capacitive loads, it is recommended to use a blocking diode on the output.
- 5. Conformal Coating option: See Sections 3.1 and 4.10 for details.
- 6. For section references above go to the Xgen Designers Manual.





Medically Approved Ultra Low Noise Power Supply

Ultra-high efficiency 1U size

PLUG & PLAY POWER next generation power solution

FEATURES & OPTIONS

- Low Acoustic noise 38.3dBA
- EN60601-1 3rd edition Approved
- Less than 300µA leakage current
- 150µA option available
- 4000VAC isolation
- Ultra high efficiency, up to 89%
- Extra low profile: 1U height (40mm)
- Plug & Play Power allows fast custom configuration
- Individual output control signals
- All outputs fully floating
- Series / Parallel of multiple outputs
- Few electrolytic capacitors (all long life)
- 5V bias standby voltage provided
- Standard Xgen product options include: Conformal Coating, Low Acoustic Noise, Low Leakage Current, Extra Ruggedisation, Connector, Cabling & Mounting options, Thermal Signals and Reverse Fans. See Section 4.10 for more information

APPLICATIONS INCLUDE

- · Clinical diagnostic equipment
- Medical lasers
- · Dialysis equipment
- · For Standard applications see XB



The XW family of medically approved Ultra Low Noise power supplies provides up to 800W in an extremely compact 1U package. Providing up to 12 isolated DC outputs, the XW family employs innovative plug & play architecture allowing users to instantly configure a custom power solution in less than 5 minutes!

The XW family consists of 3 *powerPacs* ranging in power levels from 400W to 800W peak and 7 *powerMod* DC output modules. Simply select the appropriate *powerPac* and up to 6 *powerMods* from the tables below to complete your custom power supply.

The XW family boasts ultra-high efficiencies (up to 90%). The significant system space savings and reduced heat dissipation radically simplify system design.

All configurations carry full safety agency approvals including UL60601-1, EN60601-1 3rd Edition and are CE marked.

| powerM | powerMods | | | | | | | | | |
|---------------|-----------|------|------|------|--------|-------|--|--|--|--|
| MODEL | Vmin | | Vnom | Vmax | Imax | Watts | | | | |
| | Vtrim | Vpot | | | | | | | | |
| Xg1 | 1.0 | 1.5 | 2.5 | 3.6 | 41.6A | 104W | | | | |
| Xg2 | 1.5 | 3.2 | 5.0 | 6.0 | 33.2A | 166W | | | | |
| Xg3 | 4.0 | 6.0 | 12.0 | 15.0 | 16.67A | 200W | | | | |
| Xg4 | 8.0 | 12.0 | 24.0 | 30.0 | 8.33A | 200W | | | | |
| Xg5 | 8.0 | 28 | 48.0 | 58.0 | 5A | 240W | | | | |
| Xg7 | | 5.0 | 24.0 | 28.0 | 4.17A | 100W | | | | |
| Xg8 V1 | | 5.0 | 24.0 | 28.0 | 2.5A | 60W | | | | |
| V2 | | 5.0 | 24.0 | 28.0 | 2.5A | 60W | | | | |

| powerPacs | | | | |
|-----------|-------|-------|--|--|
| | MODEL | Watts | | |
| MX | XWA | 400W | | |
| | XWB | 600W | | |
| | XWC | 800W | | |

powerMod Maximum Power Outputs (W) have been derated to operate with XW range of Ultra Low-Noise Power Supplies. See Section 4.11 Xgen Designers' Manual for full derating details.

MECHANICAL SPECIFICATIONS





excelsys

Ultra Low Noise Medical

SPECIFICATION applies to configured units consisting of powerMods plugged into the appropriate powerPac

| INPUT Parameter | Conditions/Decription | Min | Nom | Max | Units |
|--|---|-----------------|--|------------------------------|---|
| | | | Nom | | |
| Input Voltage Range | Universal Input 47-440Hz. | 85 | | 264 | VAC |
| Devuer Deting | | 120 | | 380 | VDC |
| Power Rating | XWA:400W, XWB:600W, XWC:800W | | | | |
| | See Section 4.11 for line voltage deratings | | 7.5 | | ^ |
| Input Current XWA | 85VAC in 400W out | | 7.5 | | A |
| XWB | 85VAC in 600W out | | 9.5 | | A |
| XWC | 85VAC in 625W out | | 11.5 | | A |
| Inrush Current | 230VAC @ 25°C | | | 25 | A |
| Undervoltage Lockout | Shutdown | 65 | | 74 | VAC |
| Fusing XWA | 250V | | F8A HRC | | |
| XWB | 250V | | F10A HRC | | |
| XWC | 250V | | F12A HRC | | |
| | | | | | |
| OUTPUT | | | | | |
| Parameter | Conditions/Description | Min | Nom | Max | Units |
| | | IVIIII | NOIII | Widx | Units |
| powerMod Power | As per powerMod table | | | | |
| Output Adjustment Range | Manual: Multi-turn potentiometer. As per <i>powerMod</i> table | | | | |
| | Electronic: See Section 4.6 | | | | |
| Minimum Load | | | 0 | | A |
| Line Regulation | For ±10% change from nominal line | | | ±0.1 | % |
| Load & Cross Regulation | For 25% to 75% load change | | | ±0.2 | % |
| Transient Response | For 25% to 75% load change Voltage Deviation | | | 10 | % |
| | Settling Time | | | 250 | μs |
| Ripple and Noise | 20MHz 100mV or 1.0% pk-pk | | | | |
| Overvoltage Protection | Two-level. 1st level: Vset Tracking. 2nd level: Vmax (Latching) | 110 | | 125 | % |
| Overcurrent Protection | Straight line with hiccup activation at <30% of Vnom | 110 | | 120 | % |
| | See Section 4.6 | | | | |
| Remote Sense | Max. line drop compensation. (except Xg7, Xg8) | | | 0.5 | VDC |
| Overshoot | | | | 2 | % |
| Turn-on Delay | From AC in and Global Enable / powerMod Enable | | | 700 / 6 | ms |
| - | | | | | |
| Rise Time | Monotonic | | | 5 | ms |
| Hold-up Time | For nominal output voltages at full load | 20 | | | ms |
| Output Isolation | Output to Output / Output to Chassis | 500 / 500 | | | VDC |
| | · · · · · · · · · · · · · · · · · · · | | | | |
| GENERAL | | | | | |
| Parameter | Conditions/Description | Min | Nom | Max | Units |
| Isolation Voltage | Input to Output | 4000 | | | VAC |
| - | Input to Chassis | 1500 | | | VAC |
| | | | 90 | | % |
| Efficiency | 230VAC, 800W @ 24V | | | | |
| | 230VAC, 800W @ 24V EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 | | | | |
| Safety Agency Approvals | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 | | | 300 | uА |
| Safety Agency Approvals | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C | | | | μA uA |
| Safety Agency Approvals Leakage Current | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C option 04 | | | 300 150 | μA μA |
| Safety Agency Approvals Leakage Current Signals | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C option 04 See Section 4.9 | 4.8 | 5.0 | 150 | μA |
| Safety Agency Approvals Leakage Current Signals Bias Supply | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C option 04 See Section 4.9 Always on. Current 250mA. 500mA option available | 4.8 | 5.0 | 150 5.2 | μA VDC |
| Safety Agency Approvals Leakage Current Signals Bias Supply | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod | 4.8 | 5.0 | 150 5.2 0.958 | VDC |
| Safety Agency Approvals Leakage Current Signals Bias Supply Reliability | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C option 04 See Section 4.9 Always on. Current 250mA. 500mA option available | 4.8 | 5.0 | 150 5.2 | μA VDC |
| Safety Agency Approvals Leakage Current Signals Bias Supply Reliability | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod | 4.8 | 5.0 | 150 5.2 0.958 | VDC |
| Safety Agency Approvals Leakage Current Signals Bias Supply Reliability | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod | 4.8 | 5.0 | 150 5.2 0.958 | VDC |
| Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans | 4.8 | | 150 5.2 0.958 | μA VDC fpmh fpmh |
| Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard | 4.8 | Level | 150 5.2 0.958 | μA VDC fpmh fpmh |
| Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC | 4.8 | Level Level B | 150 5.2 0.958 | μA VDC fpmh fpmh |
| Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC | 4.8 | Level Level B Level B | 150 5.2 0.958 | μA VDC fpmh fpmh |
| Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A | 4.8 | Level Level B Level B Compliant | 150 5.2 0.958 | μA VDC fpmh fpmh |
| Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC | 4.8 | Level Level B Level B | 150 5.2 0.958 | μA VDC fpmh fpmh |
| Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 | 4.8 | Level Level B Level B Compliant Compliant | 150 5.2 0.958 | μA VDC fpmh fpmh |
| Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 | 4.8 | Level B Level B Compliant Compliant Level 2 | 150 5.2 0.958 | μA VDC fpmh fpmh |
| Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 | 4.8 | Level B Level B Compliant Compliant Level 2 Level 3 | 150 5.2 0.958 | μA VDC fpmh fpmh |
| Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-3 EN61000-4-2 EN61000-4-3 EN61000-4-4 | 4.8 | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 | 150 5.2 0.958 | μA VDC fpmh fpmh |
| Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load <i>powerMod</i> See Section 4.12. <i>powerPac</i> excludes fans <i>powerPac</i> Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 | 4.8 | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 | 150 5.2 0.958 | μA VDC fpmh fpmh |
| Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load <i>powerMod</i> See Section 4.12. <i>powerPac</i> excludes fans <i>powerPac</i> Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-3 EN61000-4-5 EN61000-4-6 | 4.8 | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 | 150 5.2 0.958 | μA VDC fpmh fpmh |
| Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load <i>powerMod</i> See Section 4.12. <i>powerPac</i> excludes fans <i>powerPac</i> Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 | 4.8 | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 | 150 5.2 0.958 | μA VDC fpmh fpmh |
| Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load <i>powerMod</i> See Section 4.12. <i>powerPac</i> excludes fans <i>powerPac</i> Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-3 EN61000-4-5 EN61000-4-6 | 4.8 | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 | 150 5.2 0.958 | μA VDC fpmh fpmh |
| Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-3 EN61000-4-2 EN61000-4-2 EN61000-4-5 EN61000-4-5 EN61000-4-11 | | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | 150 5.2 0.958 0.946 | Units |
| Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load <i>powerMod</i> See Section 4.12. <i>powerPac</i> excludes fans <i>powerPac</i> Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-3 EN61000-4-5 EN61000-4-6 | Min | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 | 150 5.2 0.958 0.946 | Units |
| Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-3 EN61000-4-2 EN61000-4-2 EN61000-4-5 EN61000-4-5 EN61000-4-11 | Min 20 | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | 150 5.2 0.958 0.946 | Units |
| Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C Palways on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-11 | Min | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | 150 5.2 0.958 0.946 | Units |
| Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature Storage Temperature Derating | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-3 EN61000-4-2 EN61000-4-2 EN61000-4-5 EN61000-4-5 EN61000-4-11 | Min 20 40 | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | 150 5.2 0.958 0.946 | Units |
| Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature Storage Temperature Derating | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C Palways on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-11 | Min 20 | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | 150 5.2 0.958 0.946 | Units |
| Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature Storage Temperature Derating Relative Humidity | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-11 Conditions/Description See Section 4.11 for full temperature deratings | Min 20 40 | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | 150 5.2 0.958 0.946 | Units |
| Safety Agency Approvals Leakage Current Signals Bias Supply Reliability EMC Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature | EN60601-1 3rd Edition, UL60601-1, CSA601-1 UL File No. E230761 250VAC, 60Hz, 25°C 250VAC, 60Hz, 25°C option 04 See Section 4.9 Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod See Section 4.12. powerPac excludes fans powerPac Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-11 Conditions/Description See Section 4.11 for full temperature deratings Non-condensing | Min 20 40 | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Nom | 150 5.2 0.958 0.946 | Units |

NOTES

1. This product is not intended for use as a stand alone unit and must be installed by qualified personnel.

2. The specifications contained herein are believed to be correct at time of publication and are subject to change without notice.

3. When powering inductive or capacitive loads, it is recommended to use a blocking diode on the output.

4. All specifications at nominal input, full load, 25°C unless otherwise stated.

5. For section references above go to the Xgen Designers Manual.



Hi-Temp Power Supply Ultra-high efficiency 1U size

PLUG & PLAY POWER next generation power solution

FEATURES & OPTIONS

- Ultra high efficiency, up to 89%
- Extra low profile: 1U height (40mm)
- Plug & Play Power allows fast custom configuration
- · Individual output control signals
- · All outputs fully floating
- · Series / Parallel of multiple outputs
- · Few electrolytic capacitors (all long life)
- Visual LED indicators
- 5V bias standby voltage provided
- SEMI F47 Compliant
- Up to 600W at 70degC
- Standard Xgen product options include: Conformal Coating, Low Acoustic Noise, Low Leakage Current, Extra Ruggedisation, Connector, Cabling & Mounting options, Thermal Signals and Reverse Fans. See Section 4.10 for more information

APPLICATIONS INCLUDE

- Industrial equipment
- Telecommunications
- Outdoor display systems

EFFICIENCY (typical)



The XH family of high temperature power supplies provides up to 600W in an extremely compact 1U x 260mm x 127mm package. Designed as a configurable power supply, the XH family employs the innovative plug and play architecture that allows users to instantly configure a custom power solution in less than 5 minutes.

The XH family is ideal for use in harsh environments where there can be high ambient temperatures and wide temperature fluctuations. Operation at higher temperatures is made possible through employment of leading edge technologies and cooling techniques, making it possible for the XH to achieve unprecedented efficiencies of up to 90%.

The XH family consists of 2 *powerPac* models ranging in power levels from 400W to 600W. Each model may be populated with up to 6 *powerMods* selected from the table of powerMods shown below. All configurations carry full safety agency approvals. UL60950 and EN60950 2nd edition and carry the CE Mark.

| | powerMods | | | | | | |
|---|--------------|--------------------|------------------------|--------------|--------------|--------------|------------|
| | MODEL | Vi Vtrim | nin _{Vpot} | Vnom | Vmax | lmax | Watts |
| , | Xg1 | 1.0 | 1.5 | 2.5 | 3.6 | 26A | 65W |
| | Xg2 | 1.5 | 3.2 | 5.0 | 6.0 | 25A | 100W |
| | Xg3 | 4.0 | 6.0 | 12.0 | 15.0 | 10A | 120W |
| | Xg4 | 8.0 | 12.0 | 24.0 | 30.0 | 5A | 120W |
| | Xg5 | 8.0 | 28 | 48.0 | 58.0 | 3A | 144W |
| | Xg7 | | 5.0 | 24.0 | 28.0 | 2.5A | 60W |
| | Xg8 v1 V2 | | 5.0 5.0 | 24.0 24.0 | 28.0 28.0 | 1.5A 1.5A | 36W 36W |

powerPacs

| | MODEL | Watts |
|----------|-------|-------|
| т | XHA | 400W |
| \times | XHB | 600W |

GenSeries

MECHANICAL SPECIFICATIONS

excelsys

Note: See diagrams on pages 34-37



30 www.excelsys.com

Hi-Temp

SPECIFICATION applies to configured units consisting of powerMods plugged into the appropriate powerPac

| Parameter | Conditions/Description | Min | Nom | Max | Units |
|---|---|------------|--|--------------|-------------------|
| Input Voltage Range | Universal Input 47-440Hz | 85 | | 264 | VAC |
| D | | 120 | | 380 | VDC |
| Power Rating | XHA:400W, XHB:600W | | | | |
| Input Current XHA | See Section 4.11 for line voltage deratings 85VAC in 400W out | | 6.5 | | A |
| XHB | 85VAC in 600W out | | 7.5 | | A |
| XIID | | | 1.5 | | ~ |
| Inrush Current | 230VAC @ 25°C | | | 25 | A |
| Undervoltage Lockout | Shutdown | 65 | | 74 | VAC |
| Fusing XHA | 250V | | F10A HRC | | |
| ХНВ | 250V | | F12A HRC | | |
| OUTPUT | | | | | |
| Parameter | Conditions/Description | Min | Nom | Max | Units |
| powerMod Power | | WIIN | Nom | Max | Units |
| Output Adjustment Range | As per powerMod table Manual: Multi-turn potentiometer. As per powerMod table | | | | |
| output Aujustinent Range | Electronic: See Section 4.6 | | | | |
| Minimum Load | | | 0 | | Α |
| Line Regulation | For ±10% change from nominal line | | | ±0.1 | × |
| Load & Cross Regulation | For 25% to 75% load change | | | ±0.1 | % |
| Transient Response | For 25% to 75% load change Voltage Deviation | | | 10 | % |
| | Settling Time | | | 250 | μs |
| Ripple and Noise | 20MHz 100mV or 1.0% pk-pk | | | | 1 |
| Overvoltage Protection | 1st level: Vset Tracking. 2nd level: Vmax (Latching) | 110 | | 125 | % |
| Overcurrent Protection | Straight line with hiccup activation at <30% of Vnom | 110 | | 120 | % |
| | See Section 4.6 | | | | |
| Remote Sense | Max. line drop compensation. (except Xg7, Xg8) | | | 0.5 | VDC |
| Overshoot | | | | 2 | % |
| Turn-on Delay | From AC in and Global Enable / powerMod Enable | | | 700 / 6 | ms |
| Rise Time | Monotonic | | | 5 | ms |
| Hold-up Time | For nominal output voltages at full load. | 20 | | | ms |
| Output Isolation | Output to Output / Output to Chassis | 500 / 500 | | | VDC |
| GENERAL | | | | | |
| Parameter | Conditions/Description | Min | Nom | Max | Units |
| Isolation Voltage | Input to Output | 3000 | | | VAC |
| | Input to Chassis | 1500 | | | VAC |
| Efficiency | 230VAC, 600W @ 24V | | 90 | | % |
| Safety Agency Approvals | EN60950, UL60950, CSA22.2 No.950 UL File No. E181875 | | 200 | | - |
| Leakage Current | 250VAC, 60Hz, 25°C | | 300 | | mA |
| Signals Biog Supply | See Section 4.9 | 1.9 | 5.0 | 5.2 | VDC |
| Bias Supply Reliability | Always on. Current 250mA. 500mA option available Failures per million hours at 40°C and full load powerMod | 4.8 | 5.0 | 5.2 0.958 | fpmh |
| Renability | See Section 4.12. powerPac excludes fans powerPac | | | 0.956 | fpmh |
| | | | 1 | 0.040 | ihuu |
| | | | . <u> </u> | | |
| EMC | | | | | |
| Parameter | Standard | | Level | | Units |
| Parameter <mark>Emissions</mark> | Standard | | | | Units |
| Parameter <mark>Emissions</mark> Conducted | Standard EN55011, EN55022, FCC | | Level B | | Units |
| Parameter Emissions Conducted Radiated | Standard EN55011, EN55022, FCC EN55011, EN55022, FCC | | Level B Level B | | Units |
| Parameter Emissions Conducted Radiated Harmonic Distortion | Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A | | Level B Level B Compliant | | Units |
| Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation | Standard EN55011, EN55022, FCC EN55011, EN55022, FCC | | Level B Level B | | Units |
| Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity | Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 | | Level B Level B Compliant Compliant | | |
| Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge | Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 | | Level B Level B Compliant Compliant | | |
| Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity | Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 | | Level B Level B Compliant Compliant Level 2 Level 3 | | |
| Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst | Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 EN61000-4-4 | | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 | | |
| Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges | Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 | | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 | | |
| Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity | Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 | | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 | | Units |
| Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips | Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 | | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 | | Units |
| Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL | Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-11, SEMI F47 compliant. See note 7. | | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | | |
| Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter | Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-75 EN61000-4-76 EN61000-4-76 EN61000-4-76 EN61000-4-70 EN61000-4-70 <td< td=""><td>Min</td><td>Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3</td><td>Max</td><td>Units</td></td<> | Min | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 | Max | Units |
| Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature | Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-11, SEMI F47 compliant. See note 7. | -20 | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | +70 | Units |
| Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature Storage Temperature | Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 EN61000-4-5 EN61000-4-6 EN61000-4-7 EN61000-4-7 | | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | | Units |
| Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature Storage Temperature Derating | Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-4-2 EN61000-4-2 EN61000-4-3 EN61000-4-5 EN61000-4-6 EN61000-4-11, SEMI F47 compliant. See note 7. Conditions/Description Full Load See Section 4.11 for full temperature deratings | -20 -40 | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | +70 +85 | Units °C °C |
| Parameter Emissions Conducted Radiated Harmonic Distortion Flicker & Fluctuation Immunity Electrostatic Discharge Radiated Immunity Fast Transients-Burst Input Line Surges Conducted Immunity Voltage Dips ENVIRONMENTAL Parameter Operating Temperature Storage Temperature | Standard EN55011, EN55022, FCC EN55011, EN55022, FCC EN61000-3-2 Class A EN61000-3-3 EN61000-4-2 EN61000-4-3 EN61000-4-5 EN61000-4-6 EN61000-4-7 EN61000-4-7 | -20 | Level B Level B Compliant Compliant Level 2 Level 3 Level 3 Level 3 Level 3 Compliant | +70 | |

NOTES

1. This product is not intended for use as a stand alone unit and must be installed by qualified personnel.

2. The specifications contained herein are believed to be correct at time of publication and are subject to change without notice.

3. All specifications at nominal input, full load, 25°C unless otherwise stated.

4. When powering inductive or capacitive loads, it is recommended to use a blocking diode on the output.

- 5. Conformal Coating option: See Sections 3.1 and 4.10 for details.
- 6. For section references above go to the Xgen Designers Manual.
- 7. SEMI F47 compliant at input voltages >160VAC. Consult Excelsys for details.





Section 3.1 Configuring your Xgen

The Xgen series of user configurable power supplies combine feature rich AC input front-ends (*powerPacs*) with slide-in output DC output modules (*powerMods*). The plug and play architecture allows system designers to define and build 'instant' custom power solutions with industry leading 17W/in³ power density and up to 90% efficiency.

Configured units may be specified and ordered using the part numbering system shown below.

OPTION CODES EXPLAINED

G CONFIGURATION CODES

- "-" Standard. No additional configuration Standard output voltages and no options
- "C" Conformal Coating (see Section 4.10 *powerPac* Options for details)
- "P" Preset. Voltage Adjustments, Series, Parallel Outputs
- "R" Extra Ruggedisation for Shock and Vibration (see Section 4.10 *powerPac* Options for details)
- "S" Conformal Coating and Extra Ruggedisation for Shock and Vibration (see Section 4.10 *powerPac* Options for details)

K INPUT CONNECTOR CONFIGURATION CODES

- "0" Standard IEC Input Connector (see Section 3.3 for details)
- "D" Input Cable Option (see Section 3.3 for details)

H THERMAL AND LEAKAGE CURRENT CONFIGURATION CODES

- "1" Thermal Signals: Fan Fail and Overtemperature Warning (see Section 4.10 *powerPac* Options for details)
- "2" Reverse Fan (see Section 4.10 *powerPac* Options for details)
- "3" Thermal Signals + Reverse Fan (see Section 4.10 *powerPac* Options for details)
- "4" 150µA Leakage Current (medical versions only)
- "5" 150µA Leakage Current + Thermal Signals (medical versions only)

- "6" 150µA Leakage Current + Reverse Fan (medical versions only)
- "7" 150μA Leakage Current + Thermal Signals + Reverse Fan (medical versions only)

Example:

XVD234580-D4A contains

XVD powerPac: 1200W medically approved

Powermods Xg2:5V/40A, Xg3:12V/20A, Xg4:24V/10A, Xg5:48V/6A, Xg8:24V/3A, 24V/3A

Option D : Input cable option

Option 4: 150µA leakage current option

A: Factory assigned unique identifier

Section 3.2 Additional Xgen Flexibility and Signals

Voltage Adjustment - Local

The multi-turn potentiometer that adjusts each output within the specified range may be accessed via the output panel of the power supply. Clockwise rotation increases output voltage. Resolution is approximately 5% of nominal voltage (Vnom) per turn.

Voltage Adjustment - Remote (resistive / electronic)

The output voltage may be adjusted or trimmed by means of an external resistor or potentiometer network connected to the Vtrim pin. Dynamic voltage adjustment/programming is also possible. See Section 4.6 for more details on trimming voltage.

Parallel Connection

To achieve increased current capacity, simply parallel outputs using the standard parallel links. See Section 4.6 for parallel connection instructions.



Parallel Links available to order. Part Number XP1



Series Connection

To achieve increased output voltages, simply series outputs using standard series links, paying attention to the requirements to maintain SELV levels if required in your system.



Number XS1

Current Limit Adjustment

The output current limit setting may be adjusted (downwards only) by means of an external resistor connection to the Itrim pin. See page Section 4.6 for detail.

Inhibit/Enable

Inhibiting may be implemented either globally or on a permodule basis (*powerPac* or *powerMod* inhibiting). Reverse logic (enabling) may also be implemented. See Section 4.7 and 4.9 for details.

AC Fail

Open collector signal indicating that the input voltage has failed or is less than 80Vac. This signal changes state giving 5ms of warning before loss of output regulation. See Section 4.9 for details.

Configure using the Online Configurator

Our sales and applications team will be delighted to assist you in defining the best power supply for your application. You can also use the Online Configurator at www.excelsys.com

For some specific configurator examples please refer to Section 3.5, Configuration Examples.

Section 3.3 Connectors

Input Connectors

The Xgen series has a variety of input connector options to ease system integration. These include IEC, Input cables (3wire), IEC to Screw Adaptor.



Input Connections powerPac

Input Connector and Signals Pinout J2 powerPac

| Pin | J1 | J2 | |
|-------------|---------|----------------|--|
| 1 | Line | Common | |
| 2 | Neutral | +5V Bias | |
| 3 | Earth | not used | |
| 4 | | AC Fail | |
| 5 | | Fan Fail * | |
| 6 | | Global Enable | |
| 7 | | Temp Alarm* | |
| 8 | | Global Inhibit | |
| * Option 01 | | | |

J1 Mating Connector:

IEC320 type female plug rated 13A. Locking IEC cable and connector: Schaffner EMC part number IL13-US1-SVT-3100-183.

J2 Signals Mating Connector:

Housing: Molex p/n 51110-0850 (Non Locking), 51110-0860

Input Cable Option (Option D)

Xgen is also available with an input cable connection option allowing greater flexibility when mounting Xgen in the system. Input cables are 300mm in length and come supplied with Faston connectors. See Section 3.4 for mechanical drawings.

IEC to Screw Terminal Adaptor

Some applications may require a screw terminal input rather than the standard IEC320 connector provided with the Xgen (except XCE and XLD). For such applications, Excelsys can offer the XE1, the IEC to Screw terminal adaptor accessory plug. This is a press fit connector that plugs securely into the Xgen *powerPac* and provides the system integrator with screw terminals for mains connection. See photos for correct insertion of XE1.





Dimensional Drawings

Correct pin positions are indented to assist connection. Pins are indented to indicate the correct connection

- 1. Live (L)
- 2. Earth Centre (Earth)
- 3. Neutral (N)
- 4. Screw size M3

Max Torque to be used on screws is 1.5Nm



For applications where spade terminal inputs are required, Excelsys recommend the use of the Schurter IEC Appliance plug 4787.

Lockable IEC Power Cord

Excelsys recommends that a lockable IEC power cord is used in applications that are subject to vibration. Excelsys recommends the use of Schaffner IL13 or equivalent.



Output Connectors

The Xgen output *powerMods* connection details are shown below. Type A connectors are for single output *powerMods* Xg1 to Xg7. Type B connector for Dual output Xg8 *powerMod*.

The pinout connections and diagrams of the Xgen power and signal connectors are as follows

TYPE A Xg1-Xg7 TYPE B : Xg8





J4 Connector : M4 Screw

J3 Connector Mating Connector Housing: Locking Molex 51110-0860 Non Locking Molex 51110-0850 Crimp Termnal: Molex p/n 50394 J4Connector : Camden 9200/4A

J3 Connector Mating Connector Housing: Locking Molex 51110-0860 Non Locking Molex 51110-0850 Crimp Termnal: Molex p/n 50394

🖉 V1 Adjust

V2 Adjust

Ø

J4

Output Connector Pinout

| Pin | J4 (type A) | J4 (type B) |
|-----|-------------|-------------|
| 1 | -Vout | -V2 |
| 2 | +Vout | +V2 |
| 3 | | -V1 |
| 4 | | +V1 |
| | | |

J4 Mating Connectors:

Type A: M4 Screw Terminals Type B: Camden p/n CTB9200/4A

Output Signals Connector Pinout

| - | | | | |
|-----|----------------|-------------------|------------|--------------|
| Pin | J2 | J3 | J3 | J3 |
| () | powerPac) | (powerMod) | (powerMod) | (powerMod) |
| | | Xg1-Xg5 Type A | Xg7 Type A | Xg8 Type B |
| 1 | common | +sense | not used | -pg (V2) |
| | common | - 301130 | not used | P9 (V2) |
| 2 | +5V bias | -sense | not used | +pg (V2) |
| 3 | | V trim | not used | inhibit (V2) |
| 4 | ac fail | l trim | common | common (V2) |
| 5 | fan fail* | +inhibit/enable | -pg | -pg (V1) |
| 6 | global enable | e -inhibit/enable | +pg | +pg (V1) |
| 7 | temp alarm* | +power good | inhibit | inhibit (V1) |
| 8 | global inhibit | -power good | common | common (V1) |
| _ | | | | |

*Option 01 only

J3 *powerMod* Signals Mating Connector: Housing: Molex p/n 51110-0850 (Non Locking), 51110-0860 (Locking) or equivalent Crimp Terminal: Molex p/n 50394 (Locking) or equivalent Crimp Terminal: Molex p/n 50394

XL, XM, XK, XR, XT, XN (except XLD and XMD) Third angle projection 50.00 97.75 46.00 122.00 92.00 23.50 昌 SLOT D gen SLOT C 19.00 89.00 42.00 TOP VIEW SLOT B _ SLOT A 23.50 40.40 29.50 All dimensions in mm. **Mounting Holes** 4 M4 threaded holes on Base. Max screw penetration is 6mm from Base. **Fleximount Side Mounting Slots** Use with self-clinching studs type FH-M4-X or FH-832-X (X= stud length) from PEM, or equivalent Alternatively, use Xgen Side Clamps from Excelsys. Part No. Z165 (drawing 61401)

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Configuring your Xgen

Section 3.4 Mechanical Drawings

Configuring your Xgen

Configuring your Xgen





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Configuring your Xgen






Configuring your Xgen

Configuring your Xgen





Xgen Mounting Options

To ease system integration there are three methods of mounting the Xgen in a system.

1. Base Plate Mounting

The unit can be mounted in the system via the mounting holes present on the Xgen base. See mechanical drawings for mounting hole positions. Use M4 mounting screws. Ensure that maximum screw penetration from base does not exceed 6mm.

2. Fleximount System A

Using the side mounting clips accessory shown. the clip can be positioned at the user defined position along the slide rail on the side of the Xgen. The clip is then mounted to the system base plate. Use M4 mounting screws to fix mounting clip to system base. Excelsys part number Z165.

0

3. Fleximount System B

Using the slide rail on side of the Xgen, self clenching studs can be placed at a user defined position. Recommend: PEM FH-M4-X or FH-832-X or equivalent.

Section 3.5 Configuration Examples

When configuring your Xgen, it is important to observe the power ratings of individual *powerMods* and *powerPacs* in order to ensure the best performance of the Xgen in the system. Operating ambient temperature around the power supply and input voltage can impact the performance of a power supply in a system. The examples set out below illustrate the flexibility of the Xgen for many applications, whilst also providing the optimum solution for system designers. Our sales and applications team will be delighted to assist you in defining the best power supply for your application. You can also use the Online Configurator at

www.excelsys.com

| | Output 1 | Output 2 | Output 3 | Output 4 | Output 5 |
|-------|----------|----------|----------|----------|----------|
| Volts | 24V | 12V | 5V | 15V | -15V |
| Amps | 25A | 12A | 4A | 2A | 2A |

Example 1

Max Ambient Temp: 25°C Input Voltage: 90-264VAC Medically Approved (EN60601-1)

I. Select powerMods

| Output 1: 24V@25A | 3 x Xg4 connected in parallel |
|-------------------|-------------------------------|
| Output 2: 12V@12A | Xg3 |
| Output 3: 5V@4A | Xg7 |
| Output 4: 15V@2A | V1 of Xg8, Adjust to 15V |
| Output 5: -15V@2A | V2 of Xg8,. Adjust to 15V |

II. Calculate the power required

Power = Volt x Current Output 1: 600W Output 2: 144W Output 3: 20W Output 4: 30W Output 5: 30W

III. Select powerPac

824W at 90VAC in at 25°C, and carry medical approvals XVC: 1000W medically approved *powerPac* (XV) delivers 850W at 85VAC. Refer to *powerPac* derating curves Section 4.11.

Total: 824W

IV. Select powerMod slot position

Refer to *powerMod* derating curve Section 4.11. At 25°C all *powerMods* can be configured in any slot position.

V. Define part number

All *powerMods* are within their ratings in all slot positions. XVC444780

| | Output 1 | Output 2 | Output 3 | Output 4 | Output 5 |
|-------|----------|----------|----------|----------|----------|
| Volts | 24V | 5V | 12V | 24V | 18V |
| Amps | 15A | 30A | 15A | 1.5A | 1.5A |

Example 2

Max Ambient Temp: 40°C Input Voltage: 90-264VAC Low Acoustic Noise Standard Safety Approvals (EN60950)

I. Select powerMods

| Output 1: 24V@15A | 2 x Xg4 connected in parallel |
|--------------------|-------------------------------|
| Output 2: 5V@30A | Xg2 |
| Output 3: 12V@15A | Xg3 |
| Output 4: 24V@1.5A | V1 of Xg8, |
| Output 5: 18V@1.5A | V2 of Xg8,. Adjust to 18V |
| | |

II. Calculate the power required

Power = Volt x Current Output 1: 360W Output 2: 150W Output 3: 180W Output 4: 36W Output 5: 29W Total: 756W

III. Select powerPac

756W at 90VAC in at 40°C, and low noise XQB: 900W low noise *powerPac* (XQ) delivers 850W at 85VAC Refer to *powerPac* derating curves Section 4.11.

IV. Select powerMod slot position

Refer to *powerMod* derating curve Section 4.11. At 40°C, Xg4 delivers 240W in all slot positions. At 40°C Xg2 delivers 167W in slot A, 160W Slot B, 200W in Slots C, D, E and F. At 40°C, Xg3 delivers 240W in all slot positions. *powerMods* can be configured in any slot position. At 40°C, Xg8 delivers 80W in slot B, 96W in Slots A,C,D,E,F

V. Define part number

All *powerMods* are within their ratings in all slot positions XQB234480-00

| | Output 1 | Output 2 | Output 3 | Output 4 | Output 5 |
|-------|----------|----------|----------|----------|----------|
| Volts | 24V | 12V | 3.3V | 12V | 12V |
| Amps | 60A | 30A | 30A | 8A | 8A |

Example 3

Max Ambient Temp: 40°C Input Voltage: 200-240VAC



Configuring your Xgen

I. Select powerMods

| Output 1: 24V@60A | 6 x Xg4 connected in parallel |
|--------------------|-------------------------------|
| Output 2: 12V@30A | 2 x Xg3 connected in parallel |
| Output 3: 3.3V@30A | Xg2, Adjust to 3.3V |
| Output 4: 12V@8A | Xg3 |
| Output 5: 12V@8A | Xg3 |

II. Calculate the power required

Power = Volt x Current Output 1: 1440W Output 2: 360W Output 3: 99W Output 4: 96W Output 5: 96W Total: 2091W

III. Select powerPac

2091W at 200VAC in at 40°C, and carry standard approvals XCD: 1200W *powerPac* (XC) delivers 1200W at 200VAC. Refer to *powerPac* derating curves Section 4.11. Requires an XCD and XCC *powerPac* to achieve 2091W.

IV. Select powerMod slot position

Refer to *powerMod* derating curve Section 4.11. At 40°C, Xg4 delivers 240W in all slot positions. At 40°C, Xg3 delivers 240W in all slot positions. *powerMods* can be configured in any slot position. At 40°C Xg2 delivers 167W in slot A, 160W Slot B, 200W in Slots C, D, E and F.

V. Define part number

All *powerMods* are within their ratings in all slot positions. Divide the power consumption over the two *powerPacs* ensuring that no *powerPac* exceed its power rating.

XCC233444 to deliver 3.3V@30A, 12V@30A, 24V@30A XCC444330 to deliver 24V@30A, 12V@8, 12V@8A

Parallel connect modules over two *powerPacs* using the same method as outlined in Section 4.6.



Gen DESIGNERS' MANUAL

This Xgen Designers' Manual has been prepared by Excelsys experts to assist qualified engineers and technicians in understanding the correct system design practices necessary to achieve maximum versatility and performance from any of the Xgen series family of products.



Section 4.1 Overview of Xgen Series

The Xgen series allows users to instantly configure high efficiency, off-line power supplies. Although very small in size, (40.4mm high, 260mm long and either 89mm or 127mm wide) the Xgen series provides up to 1340W of output power. The chassis has 4 or 6 slots and can provide up to 12 isolated outputs.

A complete power supply is configured by selecting and inserting up to six DC output modules called *powerMods* to build a power supply that offers the advantages of a custom supply, but is assembled from standard and modular building blocks continuing the Excelsys tradition of industry leading configurable power supplies.

Manufactured in world class power supply facilities, the Xgen series is completely user configurable. If output requirements change, i.e. more power or a different output voltage is needed, upgrading is easy: simply unlock a single screw and replace the slide-in *powerMod* assembly with the preferred alternative. Allowing additional flexibility, *powerMods* can be connected in parallel to increase output power, or in series for higher voltages (subject to staying within isolation ratings and giving due consideration to any SELV requirements).

A user-friendly interface on connector J3 of each *powerMod* provides control and output sequencing capability, in addition to useful status indicators. Please consult our Excelsys applications team if you have other special requirements.

The plug-together architecture facilitates 'instant' custom power solutions with industry leading 17W/in³ power density and up to 90% conversion efficiency. Available in two package sizes, with a variety of application specific *powerPacs*, the Xgen series provides a standard off-the-shelf solution for specific application requirements.

Standard Features

- Input Voltage: 85V to 264Vac 47 to 63 Hz
- Outputs: Up to 12 isolated outputs
- Full power output to 40°C; Derating to 70°C

- Low inrush current
- Conducted EMI meets EN 55022 Level B
- AC Fail status signal
- Output sequencing capability
- Global shutdown capability
- Overcurrent protection standard on all outputs.
- Overvoltage protection on all outputs
- Over temperature limiting on all *powerMods* and *PowerPacs*
- Safety Agency Approvals: CE Mark, UL, CSA
- DC OK (Power Good) status signal
- · Wide output voltage adjustment range
- RoHS compliant

Optional Features

- Thermal signals suite (Overtemp and FanFail signals)
- Reversed fan airflow direction
- Conformal coating
- Ultra low leakage current
- Ruggedised for extreme shock and vibration
- Alternative input connectors

Section 4.2 Installation Considerations

Xgen series models may be mounted on any of three surfaces using standard M4 screws. The chassis comes with four mounting points on the base. Maximum allowable torque is 2Nm. The maximum penetration depth is 6mm. Additionally, the fleximountTM system on both side walls of the *powerPac* chassis facilitates flexible mounting.

When selecting a mounting location and orientation, the unit should be positioned so air flow is not restricted. Maintain a 50mm minimum clearance at both ends of the Xgen power supply and route all cables so airflow is not obstructed. The standard unit draws air in on the input side and exhausts air out the load side. If airflow ducting is used, avoid sharp turns that could create back pressure.

Avoid excessive bending of output power cables after they are connected to the Xgen *powerMods*. For high current outputs, use cable-ties to support heavy cables and minimise mechanical stress on output studs. Be careful not to short-out to neighboring output studs. Xgen *powerMods* are supplied with spring washers on all output screws. These (or equivalents) should be used and thread locking compounds are not required. The maximum torque recommended on output connectors is 4Nm. Avoid applications in which the unit is exposed to excessive shock or vibration levels that exceed the specified levels. In such applications, a shock absorption mounting design is required.

Section 4.3 Xgen Mounting Considerations

- Always fill all output slots of the Xgen. If a slot is not filled with a *powerMod*, it should be filled with an Empty Slot Cover (part numbers XB1, XB2 or XB3). Empty Slot covers are plastic assemblies whose main function is to fill up an empty slot. Excessive airflow escape from an empty slot may degrade thermal performance and result in overheating and damage to the Xgen unit. Refer to Section 4.11 for optimum positioning of *powerMods*.
- Do not unplug *powerMods* while input power is applied to the *powerPac*. The Xgen series is not designed for hot-plug applications.
 Do not restrict airflow to the unit. The cooling fan draws air
- Do not restrict arrive to the unit. The cooling fan draws a into the unit and forces it out at the output terminals.



- Always ensure that output screws are properly torqued before applying power to the *powerPac*.
- Positive and negative power cables should be arranged as a twisted pair to minimise inductance.
- Wait 4 minutes after shutting off power before inserting or removing *powerMods*.
- Xgen assemblies do not have user serviceable components. They must be returned to the factory for repairs. Contact Customer Service for a RMA number before returning the unit. Do not attempt to repair or modify the power supply in any manner other than the exchange of *powerMods* as described in this Designers' Manual.
- Use proper size wires to avoid overheating and excessive voltage drop.

Section 4.4 Theory of Operation

The Xgen is comprised of an appropriate *powerPac* and a selection of *powerMod* DC output modules selected to deliver the exact volts and amps requirements of the the system designer. See Operational Block Diagram.

The Xgen *powerPac* modules consist of a fan-cooled semienclosed chassis containing circuitry for an off-line single phase AC front end, EMI filter, cooling fan, customer interface and associated housekeeping circuits. Input AC mains voltage (L1/N, L2 and GND) is applied to an IEC320 type input connector and then through an EMI filter designed to meet EN 55022 Level B. For medical applications, the EMI filter also ensures the power supply meets the low earth leakage current requirements of EN60601-1 3rd Edition.

Inrush current limited by an active soft start cct. Current is limited by a combination of thermistors (on the Xgen 4 slot), and thermistors and SCR's (on the Xgen 6 slot). This stage is then followed by a high frequency switching input current shaping boost converter feeding the ZVS (Zero Voltage Switching) resonant switching stage. The ZVS stage supplies power to a variety of *powerMod* assemblies that provide the desired low voltage, regulated outputs. Conversion in the output assemblies

is achieved by the most advanced high efficiency converters resulting in reduced size for magnetics and capacitors; excellent line and load regulation; wide adjustment range for output and low EMI/RFI emission.

At initial power-up, the Xgen outputs are disabled to eliminate inrush current and a low-power flyback converter operating with PWM current mode control converts the high voltage DC bus into regulated low voltage to power the internal housekeeping circuits and cooling fans. Once the bus potential is within operating parameters, the AC Fail signal is activated indicating that the input power is ok, and allows the installed *powerMod* outputs to come up. An auxiliary bias supply of 5 Vdc is provided for peripheral use on interface connector J2. In the case of medically approved supplies, this bias supply has medical isolation (4000VAC).

Section 4.5

Configuration (and Reconfiguration)

powerMods may be easily added, replaced, or moved by sliding the assemblies in or out of a *powerPac* chassis.

Prior to removing or installing a *powerMod* module, remove power from the *powerPac* and wait 4 minutes. Failure to do so can result in personal injury and/or damage to the supply. Take standard ESD precautions when handling *powerMods*.

Configuring the Xgen is as easy as 1,2,3!

- 1. Select the appropriate *powerMods* for your application.
- 2. Calculate your power requirements.
- 3. Select your appropriate *powerPac* for power and application from the wide range of *powerPacs*.

Removing powerMods

powerMods may be removed by removing the screw on the top surface. Once this screw has been removed the *powerMod* will slide out of the chassis. Once a *powerMod* has been removed, the empty slot MUST be filled with either another *powerMod* or an empty slot cover. If the slot is left empty, it will provide an airflow escape and may cause inadvertent shutdown of the unit.



Operational Block Diagram



Installing powerMods

powerMods may be installed in empty slots by simply sliding in the new *powerMod*, pushing the module 'home' until the mounting bracket lines up with the hole in the Top Panel, then securing the module with the M3 x 6 countersunk screw provided. Power and interface connections can be made after the *powerMod* has been installed.

powerMods may be paralleled for more power using bus bars (Paralleling Links) across the positive and negative output terminals. See Section 4.6 for details.

Section 4.6

powerMod Operation

The Xgen series of products have been designed to allow maximum flexibility in meeting the unique requirements of individual users. The inherent flexibility resulting from modularity concepts is further enhanced by this flexibility. Although the products are very versatile, care should always be taken to ensure that the proper procedures are followed.

Voltage Adjustment

The Xgen series has been designed with maximum user flexibility as a key objective. With regards to voltage adjustment this has been achieved by the wide range of adjustment on each of the *powerMod* models. Voltage adjustment may be achieved by:

- 1. Front-panel potentiometer adjustment
- 2. Remote resistive programming
- 3. Remote voltage programming

See diagrams for details on external connections to the V trim pin (J3 pin3) required for remote voltage programming.



Remote Output Voltage Adjustment of powerMods

Remote Voltage Programming using a Voltage Source

Using an external Voltage source (V_{control}), the *powerMod* output voltage may be adjusted over a wide range. The *powerMod* output voltage may be programmed by referring to the Voltage Programming Graph and applying the formula below to set the *powerMod* output voltage to the required level.

$$V_{\text{output}} = K \times V_{\text{control}}$$
 (1)

The appropriate K factor for different *powerMods* are in the 'Remote Output Voltage Adjustment' table.

Important: V_{control} must not exceed 2.5V.

Example.

Important: Vcontrol must not exceed 2.5 V, and the slew rate of a dynamic Vcontrol most not exceed 2 V/ms.

 $V_{output} = 20V, K=12.5$ Using equation (1); $V_{output}/K=V_{control}$ 20V/12.5 = 1.6V.

V_{control} = 1.6V



Remote Output Voltage Adjustment of powerMods

| powerMod | К |
|----------|------|
| Xg1 | 1.56 |
| Xg2 | 2.5 |
| Xg3 | 6.23 |
| Xg4 | 12.5 |
| Xg5 | 24.2 |

Remote Output Voltage Adjustment Table

Remote Voltage Programming using a Resistor.

The *powerMod* output voltage can be adjusted downward using a remote potentiometer or reduced, using an external resistance.

Calculation of the the external resistance depends on the actual initial voltage setting of the *powerMod* (via the onboard potentiometer). The preferred method is to set the *powerMod* voltage to its maximum rating. e.g. Xg4 set to 30V. This will allow the widest possible adjustment range of the output voltage.

powerMod set to V_{max} For modules Xg1 and Xg2

$$R_{trim} = [3700V_{out} - 250K]$$
(2)
[2.5K-V_{out}]

Example.

Using a *powerMod* Xg4, determine the resistance value to be applied to V_{trim} pin in order to set *powerMod* output voltage to 20V.

K for Xg4 = 12.5 Vout = 20V Using equation (2)

Rtrim= 6300 ohm

Alternatively if the *powerMod* voltage is set to new level via the on-board potentiometer to another level e.g. 21V then the following formula must be used to calculate the value of R_{trim}

For powerMod Xg1 and Xg2

$$R_{trim} = V_{out} \underbrace{[(3700 + 10KVp(1-Vp)] - K(100Vp+67.5)]}_{K(Vp + 0.675) - V_{out}}$$
(3)



| powerMod | ' Vmin | Vnom | Vmax | lmax | Ilimit adjust Min Max | Current Limit On set SC* | Current Limit Foldback | Vtrim Range Min Max | Itrim Range Min Max | OVP1 Tracking % of Vset | OVP2 Latching % of Vmax | Remote Sense | J3 Si | gnals |
|------------------|--------|-------|-------|------|--------------------------------|-----------------------------------|------------------------------|------------------------------|------------------------------|-------------------------------|-------------------------------|-----------------|-----------------------------------|----------------------------------|
| Xg1 | 1.5V | 2.5V | 3.6V | 50A | 5A 55.0A | 55.0A 58.0A | Yes | 1.0V 3.6V | 5A 50A | 110-115% | 110-125% | 0.5V | +Sense Vtrim Inhibit +PG | -Sense Itrim Enable -PG |
| Xg2 | 3.2V | 5.0V | 6.0V | 40A | 4A 44.0A | 44.0A 46.0A | Yes | 1.0V 6.0V | 4A 40A | 110-115% | 110-125% | 0.5V | +Sense Vtrim Inhibit +PG | -Sense Itrim Enable -PG |
| Xg3 | 6.0V | 12.0V | 15.0V | 20A | 2A 22.0A | 22.0A 23.0A | Yes | 4.0V 15.0V | 2A 20A | 110-115% | 110-125% | 0.5V | +Sense Vtrim Inhibit +PG | -Sense Itrim Enable -PG |
| Xg4 | 12.0V | 24.0V | 30.0V | 10A | 1A 11.0A | 11.0A 12.0A | Yes | 8.0V 30.0V | 1A 10A | 110-115% | 110-125% | 0.5V | +Sense Vtrim Inhibit +PG | -Sense Itrim Enable -PG |
| Xg5 | 28.0V | 48.0V | 58.0V | 6A | 0.7A 6.66A | 6.6A 7.0A | Yes | 8.0V 58.0V | 0.7A 6A | 110-115% | 110-125% | 0.5V | +Sense Vtrim Inhibit +PG | -Sense Itrim Enable -PG |
| Xg7 | 5.0V | 24.0V | 30.0V | 5A | No | 5.5A 6.0A | No | No | No | No | 110-125% | No | +PG -PG Inhibit Common | +PG |
| Xg8 <i>V1</i> | 5.0V | 24.0V | 28.0 | 3A | No | 3.3A 4.0A | No | No | No | No | 110-125% | No | +PG -PG | +PG -PG |
| Xg8 V2 | 5.0V | 24.0V | 28.0 | ЗA | No | 3.3A 4.0A | No | No | No | No | 110-125% | No | Inhibit Common | Inhibit Common |

Output powerMod Summary Specifications

| For <i>powerMod</i> Xg3, Xg4 and Xg5 | |
|--|-----|
| $R_{trim} = \frac{V_{out} [(3700 + 10 \text{KVp}(1 - \text{Vp})] - \text{K}(100 \text{Vp} + 127.50)]}{V_{out} [(3700 + 10 \text{KVp}(1 - \text{Vp})] - \text{K}(100 \text{Vp} + 127.50)]}$ | (4) |
| [K(Vp +1.275) -V _{out} _ | |

where Vp is the *powerMod* setpoint voltage expressed as a proportion of the total trim range.

| Vp = <u>(Vset-Vmin)</u> | (5) |
|-------------------------|-----|
| (Vmax-Vmin) | |

Example.

To set powerMod Xg4 to 15V when powerMod Vset is 21V

Using equation (5) Vp = (21-12)(30-12)

K= 12.5 Vout =15V

Using equation (4) $R_{trim} = \frac{V_{out}[(3700 + 10KVp(1-Vp)] - K(100Vp+127.5)]}{[K(Vp + 1.275) - V_{out}]}$

Vp =0.5

Rtrim = 7478 ohm The power rating of the trim resistor can be as low at 100mW

Over Current Protection (OCP)

A variety of over current protection methods are possible with the Xgen series. See the 'Output *powerMod* Summary' table which indicates the available current limit modes on each *powerMod*.

powerMods Xg1 to Xg5 can have Straight-line current limit or Foldback current limit. See 'Output *powerMod* Summary Specifications' table for nominal current limit values.

Simple external application circuits may be used to achieve programmable *foldback* current and *user programmable* current limit levels (reduced). See Current Limit Programming diagrams and Foldback Programmable Current Limit diagram. The default current limit characteristic is Straight Line Current Limit.

Programming Current Limit

The current limit can be programmed to your requirements (in both Straight line and Foldback modes).





Straight line Current Limit can be programmed using an external voltage source or resistor/potentiometer. Connection between the Itrim pin (J3 pin4 and the -Vout terminal will set the current limit to the desired level.

Straight Line Current Limit Using a Voltage Source

The formula below will calculate the required external control voltage required to set the current limit of a *powerMod*:

 $V_{control} = FI_{lim} - VD + 1$ (6)

Where F is a conversion factor for each powerMod.

VD is the voltage drop across BAW56W. This can be assumed to be 0.5V for calculations, however it will vary slightly due to temperature. Refer to BAW56W datasheet for further details.

Example:

To set the current limit of Xg2 to 20A, determine the external voltage to be applied to the Itrim pin.

$$\begin{split} & \mathsf{I}_{\mathsf{lim}} = 20\mathsf{A} \\ & \mathsf{F} = 0.0308 \text{ for Xg2} \\ & \mathsf{VD} = 0.5\mathsf{V} \\ & \mathsf{Using equation (6)} \end{split}$$

V_{control} =1.116V

Note that application of any voltage >2.5V to Itrim will not increase current limit beyond the *powerMods* normal current limit.



Current Limit Programming

| powerMod | F |
|-----------|---------|
| powerwood | |
| Xg1 | 0.026 |
| Xg2 | 0.0308 |
| Xg3 | 0.09108 |
| Xg4 | 0.14935 |
| Xq5 | 0.2987 |

Current Limit Adjustment Table

Straight Line Current Limit Using an External Resistor

The formula below will calculate the required external resistor value required to set the current limit of a *powerMod*:

$$\frac{R + limit}{1320} \begin{bmatrix} \underline{((3-VD))} & -1 \end{bmatrix}$$
(7)
(2-FIlim)

Example:

To set the current limit of Xg2 to 30A, what resistance must be placed between the $\ensuremath{\mathsf{ltrim}}$ pin and -V.

 $I_{lim} = 30A \\ F= 0.0308 \text{ for } Xg2 \\ VD = 0.5V \\ Using equation (7)$

R I limit = 1747 ohm

Foldback Current Limit Programming

Foldback Current Limit can be achieved using the circuit below.



Foldback Current Limit

The onset of Foldback current limit (I fb1) can be programmed using the formula below as can the actual end point (I fb2). To set the final Foldback current limit point (I fb2), the value R1 in parallel with R2 is equivalent to R I limit in the previous Straight Line current limit example.

To set I $_{\rm fb1}$ point, we must calculate the ratio of R1 to R2. To get the value of R1:

$$R1 = (R \mid limit) Vout$$

$$[FIf_{b1}(1 + R \mid limit) - 2R \mid limit + 1 - VD]$$

$$1320 \quad 1320$$

$$R2 = (R1)(R1 \mid limit)$$

$$R_1 - R \mid limit$$
(9)

Example:

To set the foldback current limit of an Xg2 set at 5V to the following levels, I $_{\rm fb1}$ =30A and I $_{\rm fb2}$ =20A, determine the values of R1 to R2 required.

$$\begin{array}{l} V_{out} \, 5V \\ F = 0.0308 \\ I_{fb1} = 30A \\ I_{fb2} = 20A \\ VD = 0.5V \\ To set I_{fb2} to 20A, we need the to set R_{1 limit} equivalent parallel resistance of R_1 in parallel with R_2. \\ Using equation (7) \\ \hline R_{1 limit} = 1320 \left[\frac{((3-VD))}{2} -1 \right] \end{array}$$

(2-Fllim)

R I limit = 1064 ohm.

To calculate the ratio of R_1 to R_2 use the formula above

Use equation (8)n to get the value of R1

R1 = 9556 ohm

Use equation (9) to get the value of R2

R2 =1197 ohm

Over Voltage Protection (OVP)

Over-voltage protection is implemented on each Xgen *powerMod* output. OVP level is fixed relative to Vmax (110-125%). OVP is Latching and it may be reset by removing and reinstating AC power from the Xgen *powerPac* input.



Power Limit

Each *powerMod* has a number of levels of protection in order to ensure that Xgen is not damaged if used in overload conditions.



Output powerMod Power Limit

See graph below.

When Vset is less than or equal to Vnom, current limit is employed at the current limit set point. However if Vset is greater than Vnom, the power limit is employed to ensure that the *powerMods* does not exceed its power rating.

e.g. Xg4 is adjustable between 12V and 30V. Imax is 10A. Power rating is 240W.

At 24V the *powerMod* can deliver 10A continuously, i.e 240W. At 30V, the *powerMod* can still deliver 240W, however this equates to 8A continuous.

Remote Sense

To compensate for voltage drops in the output leads, use remote sensing. Remote sensing is available on all single output and on the first output (V1) of the dual output module.

Remote sensing may be implemented by connecting the Positive Sense pin (J3 pin1) to the positive side of the remote load and the Negative Sense pin (J3 pin2) to the negative side of the remote load. The maximum line drop, which can be compensated for by remote sensing, is 0.5V, subject to not exceeding the maximum module voltage at the output terminals.

Observe the following precautions when remote sensing:

- 1. Use separate twisted pairs for power and sense wiring.
- 2. Route the sensing leads to prevent pick up, which may appear as ripple on the output.
- 3. Never disconnect the output power rail with the sensing still connected to the load.



Remote Sense of Output Voltage

In certain applications where there is a high dynamic impedance along the power leads to the sensing point, remote sensing may cause system instability. This system problem can be overcome by using resistors in the sense leads (Positive sense lead: $R_1 =$ 100ohm, Negative sense lead: $R_2=10$ ohm), together with local AC sensing, by using 22uF capacitors between the remote sense pins and the output terminals.

The resistance of the power cables must be so that the voltage drop across the cables is less than 0.5V (to ensure remote sensing operates correctly).

Rcable < <u>0.5</u> lout

e.g. for an Xg2, 5V/40A. The $\mathsf{R}_{\mathsf{cable}}$ must be less than 12.5mohms.

Measurement of Ripple & Noise

As with all switched mode power supplies, it is important to ensure that the correct method is used to verify ripple & noise. Care should be taken to ensure that a loop antenna is not formed by the tip and ground lead of the oscilloscope probe as this would lead to erroneous readings consisting mainly of pickup from remnant radiation in the vicinity of the output connectors. Excelsys recommends the use of a x1 probe with the ground sheath of the probe tip used for ground connection.

In some applications, further erroneous readings may result from CM currents. These can be reduced by looping a few turns of the scope lead through a suitable high permeability ferrite ring.

As most loads powered by a power supply will have at least small values of differential capacitors located near the load, Excelsys also recommends the use of small value of capacitance (approx 1uF) positioned at the point of measurement.

Minimising System Noise

There are a number of causes of poor system noise performance. Some of the more common causes are listed below.

- a. Insufficient de-coupling on the PCB or load.
- b. Faulty wiring connection or poor cable terminations.
- c. Poor system earthing.

There are some simple steps to eliminate, reduce or identify the causes of high frequency noise,

- a. Is the noise conducted or radiated? If changing the position of the power supply or screening improves performance, the noise is likely to be radiated. See Section 4.14 EMC (Electro Magnetic Characteristics).
- b. Twist all pairs of power and sense cables separately.
- c. Ground connections (zero Volt) should be made with the shortest possible wiring via a capacitor to the nearest point on the chassis.

Series Connection of *powerMod* outputs

It is possible to connect modules in series to increase output voltage. Outputs are rated SELV (Safety Extra Low Voltage), that is, that output voltages are guaranteed to be less than 60,



if putting modules in series please take appropriate precautions. It is good practice to stack modules with similar output current limits, so that in case of short circuit the outputs collapse together.



Series Connection of powerMods

If remote sensing is required, the exterior sense connections should connect to the load at point of use, and the interior connections to the local sense. Special links for series connection modules (part number XS1) to reduce wiring complexity can be specified and fitted by the installer or added at the factory.

Parallel Connection of powerMod outputs

powerMods may be paralleled to increase output current. Only *powerMods* of the same type may be paralleled and the installer should adjust the setting on each *powerMod* separately to the same value. i.e within 0.1% of the set voltage. Excelsys supplies special parallel link connection bars (part number XP1) for parallel connection to reduce wiring complexity. These can be



Parallel Connection of powerMods

fitted by the installer or added at the factory. When connecting *powerMods* in parallel, please observe the following steps.

- 1. Attach the negative Parallel Link.
- 2. Ensure *powerMod* DIP switch on each *powerMod* is switched to Ishare ON.
- 3. Set the voltage of *powerMod* 1 to the correct output required.
- Measure the voltage difference (dV) between the positive terminals of the powerMods and adjust powerMod to minimise dV (typically 5mV).
- 5. Attach the positive parallel link.

This ensures current sharing between paralleled modules and is the recommended mode for paralleling *powerMods*. Current sharing is proportional to the dV (difference between the voltage settings of the *powerMods*). The percentage of current sharing is calculated as follows:

| IShare error% = <u>10000dV</u> | (10) |
|--------------------------------|------|
| 1.5Vmax | |

Remote Sense can be implemented as with a single *powerMod*. Simply connect the sense pins of the paralleled *powerMods*. Bring the sense connections from one of the *powerMods* to the load.

For Remote Voltage Adjustment (via Vtrim pin) of *powerMods*, please contact factory.

powerMod Start-Up and Shutdown

powerMods are designed such that when input power is applied, all outputs rise to their set point voltage simultaneously. Likewise, when input power is removed all outputs commence to drop simultaneously and reach Zero potential simultaneously.

Outputs can be sequenced using the enable function in order to allow controlled start up if required.

See plots for start-up and shutdown characteristics.



Output powerMod Start-Up





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Section 4.7

powerMod Signals

powerMod Enable/Inhibit

Each powerMod may be enabled/inhibited by means of an appropriate signal applied to an opto-isolated input on pins J3 pin 5 (positive) and J3 pin 6 (negative), on powerMods Xg1 to Xg5. Inhibit is available by means of an appropriate signal applied to an opto-isolated input on J3 pin7 on Xg7, on J3 pin 3 and pin 7 on Xg8. The output voltage of the *powerMod* will be fully inhibited to 0V.

| | Xg1 to Xg5 | Xg7, Xg8 |
|------------------------------|------------|----------|
| Maximum signal input voltage | 12V | 0.8V |
| Minimum signal input voltage | 3V | 0V |
| Minimum current required is | 1.7mA | |



Remote Inhibit/Enable of Output

The powerMod can be configured to be NORMALLY ON or NORMALLY OFF by appropriate setting of the DIP switch on the powerMod. (note the default mode is NORMALLY ON).

INHIBIT ON/ENABLE OFF is the standard position. The powerMod will deliver output voltage when mains is applied (and *powerPac* is enabled). The *powerMod* requires an external signal to disable the output.

E.g. 5V applied between +IN/EN and -IN/EN pins will disable the powerMod, (bring output to 0V).

This may be changed to 'ENABLE' by setting of the DIP switch to the INHIBIT OFF/ENABLE ON position.



Inhibit ON/ENABLE OFF. Normally ON

DIP Switch Setting on Output powerMods

DIP switches are only available on *powerMods* Xg1 to Xg5.

powerMod Power Good Signal

Each powerMod contains an internal comparator which monitors the output voltage and determines whether this voltage is within normal operation limits. When the output voltage is within normal limits, the Power Good signal is activated.



Output powerMods Power Good Signal

For Xg1-Xg5, an opto-isolated signal is generated and available on J3 pin 7 and J3 pin 8. (opto-transistor ON = Good). For Xg7, signal is available on J3 Pin 6 and J3 Pin5. For Xg8, V1 signal available on J3 Pin 6 and J3 Pin 5. V2 signal is available on J3 Pin 2 and J3 Pin 1. Maximum collector current is 2mA. Maximum Collector voltage is 30V. T7 < 6ms T8 < 6ms powerMod Enable t7 Vout Power Good

Output powerMod Signals

powerMod LED Indicator

The LED indicator on each powerMod module gives a visual indication of the information contained in the Power Good signal above.

Section 4.8 powerPac Operation

The Xgen powerPac provides the front end input power to the Xgen powerMods. This is available in two package sizes and a number of power ratings. See Section 4.11, Power Ratings for more detail.

Bias Voltage

A SELV isolated bias (always on) voltage of 5V @ 250mA (30mA on XCE and XVE models) is provided on J2 pin 2 relative to J2 pin 1 (common) and may be used for miscellaneous control functions. 5V @ 500mA available on request.

For medical applications, this bias supply voltage has 4000VAC isolation.





AC Fail

AC Mains Fail signal is implemented by an Opto-isolated signal with a maximum sink current of 4mA. During normal operation the transistor is ON. When the input voltage is lost or goes below 80Vac, the opto-transistor is turned OFF at least 5mS before loss of output regulation (at nominal *powerMod* voltage or below).

80ms < t1 < 600ms

80ms < t2 < 100ms, 400ms for XLD, XMD, XCE and XVE.

- t3 = 10ms
- t4 > 10ms
- t5 > 2ms

Global Inhibit

A global inhibit function may be implemented via simple contact closure as shown. This function inhibits ALL *powerMod* outputs except the auxiliary bias voltage. Global inhibit also shuts down the *powerPac* fans.

Global Enable

A global enable function may be implemented via simple contact closure as shown in the diagram. Ensure that J2 pin 8 and J2 pin 1 are connected prior to contact closure. This function enables ALL *powerMod* outputs and the *powerPac* fans. Refer to the diagram above and product datasheets for Turn-on Delay specifications.

Global Inhibit Using an External Signal

A global inhibit function may be implemented using a signal from the system using the diagram shown. This function inhibits ALL *powerMod* outputs. Global inhibit also shuts down the *powerPac* fans.

Global Enable Using an External Signal

A global enable function may be implemented using a signal from the system using the diagram shown. This function enables ALL *powerMod* outputs.Refer to the diagram above and product datasheets for Turn-on Delay specifications.



Global Inhibit Using Bias Supply Voltage



Global Enable Using Bias Supply Voltage



Global Inhibit Using an External Signal



Global Enable Using an External Signal



Section 4.10

powerPac Options

Temperature Alarm (Option 01)

Open collector signal indicating that excessive temperature has been reached due to fan failure or operation beyond ratings. This signal is activated at least 10ms prior to system shutdown.



Over-temperature and Fan Fail

Fan Fail (Option 01)

Open collector signal indicating that at least one of the *powerPac* fans has failed. This does not cause power supply shutdown. The power supply will continue to operate until 10ms after the temperature alarm signal is generated.

Reverse Fan (Option 02)

The Xgen series is available with reverse air flow direction. This is ideal to expel air from the system and works particularly well with the internal fan cooling built into the overall system. Contact factory for details.

Ultra Low Leakage Current (Option 04)

The Xgen is available with the option of Ultra Low Earth Leakage Current of $<150\mu$ A. This is ideal for Medical applications using two Xgen power supplies or containing additional parts that contribute to the system Earth Leakage Current, ensuring system Earth Leakage current does not exceed levels defined in EN60601-1 and UL60601-1 2nd and 3rd Editions.

Conformal Coating (Option C)

Xgen is available with conformal coating for harsh environments and MIL-COTs applications. It is IP50 rated against dust and protected against vertical falling drops of water and non condensing moisture, e.g. XCC234400C00 is a conformal coated 1000W configured Xgen.

Ruggedised Option (Option R)

Xgen is available with extra ruggedisation for applications that are subject to extremes in shock and vibration. These parts have been tested on 3 axes, for a total of 300hours at 1.67g's rms. e.g. XCC234400R00 is a ruggedised 1000W configured Xgen.

Conformal Coating and Ruggedised Option (Option S)

Combination of above. E.g. XCC234400S00 is a conformal coated, ruggedised 1000W configured Xgen.

Input Cable Option (Option D)

3 Wire input mains cable. Input cables are 300mm in length and come supplied with fast on connectors. See Section 3.4 for mechanical drawing.

Section 4.11 Power Ratings

When specifying an Xgen series power supply in an application it is necessary to ensure that *powerPacs* and *powerMods* are operating within their power output capabilities, taking into account the Temperature Derating and Input Voltage Derating. *powerMods* are designed to provide maximum output power at the nominal output voltages. The maximum permissible output power that may be drawn from any *powerMod* is given in the *powerMod* specification table in Section 4.6.



XLA/XLB/XLC/XLD and XMA/XMB/XMC/XMD @ 220VAC Derating



XLA/XLB/XLC/XLD and XMA/XMB/XMC/XMD @ 110VAC Derating



XKA/XKB/XKC and XRA/XRB/XRC @ 220VAC Derating



XKA/XKB/XKC and XRA/XRB/XRC @ 110VAC Derating





XTA/XTB and XNA/XNB @ 220VAC Derating











XCA/XCB/XCC/XCD/XCE and XVA/XVB/XVC/XVD/XVE Derating @ 110VAC Derating



XQC, XZC @ 220VAC*



XBA/XBB/XBC and XWA/XWB/XWC @ 220VAC Derating



XBA/XBB/XBC and XWA/XWB/XWC @ 110VAC Derating

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6 slot powerPac Derating Curves XHA/XHB @ 110VAC Derating

XCE and XVE powerPac considerations

- 1. XCE and XVE can deliver 1450W for a duration of 10s with an 8% duty cycle.
- 2. When 6 powerMods are operated in parallel, the XCE output power must be derated to 1280W.
- 3. At operation above 40°C, it is necessary to apply minumum load to the outputs. See table for minimum load requirements.

| T ambient (°C) | Min Load (W) |
|----------------|--------------|
| 40 | 0 |
| 50 | 100 |
| 60 | 175 |
| 70 | 250 |

XVC/XVE minimum load requirements

powerMod Derating All powerMods may be used in any powerPac slot position. When used in different slot locations, the appropriate temperature derating curve must be observed as set out in the following tables. Derating is independent of Input voltage. Using the following derating curves will ensure that the Xgen is populated with powerMods in the best locations to optimise system performance.

| | Max Power (W) | | | | | | | |
|----------|---|----------|--------------------------|--|--|--|--|--|
| PowerMod | All Models Except XH, XB, XW, XT, XN | Model XH | Models XB, XW, XT, XN | | | | | |
| Xg1 | 125 | 65 | 104 | | | | | |
| Xg2 | 200 | 100 | 166 | | | | | |
| Xg3 | 240 | 120 | 200 | | | | | |
| Xg4 | 240 | 120 | 200 | | | | | |
| Xg5 | 288 | 144 | 240 | | | | | |
| Xg7 | 120 | 60 | 100 | | | | | |
| Xg8 | 72/72 | 36/36 | 60/60 | | | | | |



powerMod Temperature Derating

| Product | Slot | Xg1 | Xg2 | Xg3 | Xg4 | Xg5 | Xg7 | Xg8 |
|---------|------|------|------|-----|-----|-----|-----|-----|
| 4 Slot | Α | DC2 | DC2 | DC2 | DC1 | DC1 | DC1 | DC1 |
| | В | DC2* | DC2* | DC2 | DC1 | DC1 | DC1 | DC1 |
| | С | DC2 | DC2 | DC1 | DC1 | DC1 | DC1 | DC1 |
| | D | DC1 | DC1 | DC1 | DC1 | DC1 | DC1 | DC1 |
| 6 Slot | Α | DC1 | DC2 | DC1 | DC1 | DC1 | DC1 | DC1 |
| | В | DC2* | DC2* | DC1 | DC1 | DC1 | DC2 | DC2 |
| | С | DC2 | DC1 | DC1 | DC1 | DC1 | DC1 | DC1 |
| | D | DC1 | DC1 | DC1 | DC1 | DC1 | DC1 | DC1 |
| | Е | DC1 | DC1 | DC1 | DC1 | DC1 | DC1 | DC1 |
| | F | DC1 | DC1 | DC1 | DC1 | DC1 | DC1 | DC1 |
| | | | | | | | | |

* Device can deliver 95% of rated power at 25degC

| | powerMod Slot Positon Derating | | | | | | | | | | |
|---------|--------------------------------|-----|------|-----|-----|-----|-----|-----|--|--|--|
| Product | Slot | Xg1 | Xg2 | Xg3 | Xg4 | Xg5 | Xg7 | Xg8 | | | |
| 4 Slot | Α | DC1 | DC2 | DC1 | DC1 | DC1 | DC1 | DC1 | | | |
| | В | DC2 | DC2 | DC1 | DC1 | DC1 | DC1 | DC1 | | | |
| | С | DC2 | DC2 | DC1 | DC1 | DC1 | DC1 | DC1 | | | |
| | D | DC1 | DC2 | DC1 | DC1 | DC1 | DC1 | DC1 | | | |
| 6 Slot | Α | DC1 | DC2 | DC1 | DC1 | DC1 | DC1 | DC1 | | | |
| | В | DC2 | DC2* | DC1 | DC1 | DC1 | DC1 | DC2 | | | |
| | С | DC2 | DC2 | DC1 | DC1 | DC1 | DC1 | DC2 | | | |
| | D | DC2 | DC1 | DC1 | DC1 | DC1 | DC1 | DC1 | | | |
| | Е | DC1 | DC1 | DC1 | DC1 | DC1 | DC1 | DC1 | | | |
| | F | DC1 | DC1 | DC1 | DC1 | DC1 | DC1 | DC1 | | | |
| | | | | | | | | | | | |

* Device can deliver 95% of rated power at 25degC

powerMod Slot Position Derting for Ultra Quiet XT/XN/XB/XW Series

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Acoustic Noise Xgen power supplies can be used in a wide variety of applications. Certain applications are more sensitive to audible noise than others. The table below sets out the measured

Acoustic Noise measurements of Xgen powerPacs

| powerPac | [dBA] | amb [dBA] |
|------------------------|-------|-----------|
| Standard XL, XM | 45.8 | 27.4 |
| Quiet Fan XK, XR | 39.8 | 27.5 |
| Ultra Low Noise XT, XN | 37.3 | 27.3 |
| XLD, XMD | 52.8 | 27.3 |
| | | |
| powerPac | [dBA] | amb [dBA] |
| Standard XC, XV | 49.5 | 27.3 |
| Quiet Fan XQ, XZ | 42.7 | 27.5 |
| Ultra Low Noise XB, XW | 38.3 | 27.4 |
| | 56.5 | 27.3 |



acoustic noise of the various versions of Xgen. All acoustic noise measurements have been conducted in an anechoic chamber at a distance of 1m. Please refer to the *powerPac* and *powerMod* derating curves in Section 4.11 when calculating the output power required by the system.



Bathtub Reliability curve

Section 4.12 Reliability

The 'bath-tub' curve shows how the failure rate of a power supply develops over time. It is made up of three separate stages. Immediately after production, some units fail due to defective components or production errors. To ensure that these early failures do not happen while in the possession of the user, Excelsys carries out a burn-in on each unit, designed to ensure that all these early failures are detected at Excelsys. After this period, the power supplies fail very rarely, and the failure rate during this period is fairly constant. The reciprocal of this failure rate is the MTBF (Mean Time Between Failures).

At some time, as the unit approaches its end of life, the first signs of wear appear and failures become more frequent. Generally 'lifetime' is defined as that time where the failure rate increases to five times the statistical rate from the flat portion of the curve.

In summary, the MTBF is a measurement of how many devices fail in a period of time (i.e. a measure of reliability), before signs of wear set in. On the other hand, the lifetime is the time after which the units fail due to wear appearing.

The MTBF may be calculated mathematically as follows:

MTBF = Total x t / Failure , where

Total is the total number of power supplies operated simultaneously.

Failure is the number of failures.

t is the observation period.

MTBF may be established in two ways, by actual statistics on the hours of operation of a large population of units, or by calculation from a known standard such as Telecordia SR-332 and MIL-HDBK-217 and its revisions.

Determining MTBF by Calculation

MTBF, when calculated in accordance with Telecordia, MIL-HDBK-217 and other reliability tables involves the summation of the failure rates of each individual component at its operating temperature. The failure rate of each component is determined by multiplying a base failure rate for that component by its operating stress level.

The result is FPMH, the failure rate per million operating hours for that component.

Then FPMH for an assembly is simply the sum of the individual component FPMH.

Total FPMH = FPMH1 + FPMH2 + +FPMHn

MTBF (hours) = <u>1,000,000</u> FPMH

In this manner, MTBF can be calculated at any temperature. The Xgen series has the following failure rates at 40°C and full load, based on Telecordia SR-332 standard.

powerMod 0.958 failures per million hours 4slot *powerPac* 0.92 failures per million hours 6slot *powerPac* 0.946 failures per million hours

The figures for the *powerPac* excludes fans.

Example: What is the MTBF of XLB4400-00 XLB FPMH = 0.92 Xg4 FPMH = 0.958 Total FPMH = 2.88 MTBF = 347,000 hours at 40°C

MTBF and Temperature

Reliability and MTBF are highly dependent on operating temperature. The figures above are given at 40°C. For each 10°C decrease, the MTBF increases by a factor of approximately 2. Conversely, however, for each 10°C increase, the MTBF reduces by a similar factor. Therefore, when comparing manufacturer's quoted MTBF figures, look at the temperature information provided.

Section 4.13 Safety Approvals

Low Voltage Directive (LVD) 2006/95/EC

The LVD applies to equipment with an AC input voltage of between 50V and 1000V or a DC input voltage between 75V and 1500V. The Xgen series is CE marked to show compliance with the LVD.

The relevant European standard for XC, XL, XH, XK, XT, XB and XQ models is EN60950 (Information technology). The 2nd Edition of this standard in now published and all relevant Excelsys power supplies are certified to the latest edition as well as the 1st Edition.

The relevant European standard for XV, XM, XR, XZ, XN and XW medical models is EN60601-1 (Medical Devices Directive). The 3rd Edition of this standard is published and all Excelsys medically approved power supplies are certified to this latest edition as well as the 2nd Edition. With appropriate packaging, the Xgen can also meet the requirements of EN61010-1 for industrial scientific measuring equipment and process control.

XC, XL, XH, XK, XT, XB and XQ models are certified to comply with the requirements of IEC950, EN60950, UL60950 (1st and 2nd Editions), and CSA 22.2 no. 234 and IEC1010, when correctly installed in a imited access environment.

The XV, XM, XR, XZ, XN and XW models are certified to comply



with the requirements of IEC601-1, EN60601-1, UL60601-1 (2nd and 3rd Editions) and CSA601-1, for non-patient connect applications.

powerMods Xg2, Xg3, Xg4 and Xg5 are capable of providing hazardous energy levels (>240 VA). Equipment manufacturers must provide adequate protection to service personnel.

Environmental Parameters

The Xgen series is designed for the following parameters:

Material Group IIIb, Pollution Degree 2

Installation Category 2

Class I

Indoor use (installed, accessible to Service Engineers only). Altitude: -155 metres to +2000 metres from sea level.

Humidity: 5 to 95% non-condensing.

Operating temperature -20°C to 70°C

Derate to 70°C. See *powerPac* Derating for details.

Approval Limitations

Use in North America

When this product is used on 180 to 253 Volts AC mains with no neutral, connect the two live wires to L (live) and N (neutral) terminals on the input connector.

Standard

Creepage Distances XC, XL, XH, XK, XQ, XT, XB models Primary mains circuits to earth: 2.5mm spacing Primary mains circuits to secondary: 5mm spacing

Dielectric strength XC, XL, XH, XK, XQ, XT, XB models Primary mains circuits to chassis: 1500VAC Primary mains circuits to secondary: 3000VAC

Medical

Creepage Distances XV, XM, XR, XZ, XN, XW models Primary mains circuits to earth: 4mm spacing Primary mains circuits to secondary: 8mm spacing

Dielectric strength XV, XM, XR, XZ, XN, XW models Primary mains circuits to chassis: 1500VAC Primary mains circuits to secondary: 4000VAC

The primary to secondary test is not possible with modules fitted to the unit, as damage to the EMI capacitors will occur.

Output Isolation

Outputs are each isolated 500V DC to each other and 500 V DC to chassis.

Section 4.14

Electro Magnetic Characteristics

EMC Directive 2004/108/EC

Component Power Supplies such as the Xgen series are not covered by the EMC directive. It is not possible for any power supply manufacturer to guarantee conformity of the final product to the EMC directive, since performance is critically dependent on the final system configuration. System compliance with the EMC directive is facilitated by Xgen compliance with several of the requirements as outlined in the following paragraphs. Although the Xgen product series meet these requirements, the CE mark does not cover this area.

EMISSIONS

Power Factor (Harmonic) Correction

The Xgen series incorporates active power factor correction and therefore meets the requirements of EN61000-3-2. Power factor: 0.98

EN61000-3-3 Flicker & Voltage Fluctuation Limits

Xgen power supplies meet the requirements of the limits on voltage fluctuations and flicker in low voltage supply systems.

EN55022 Class B Conducted Emissions

Under appropriate test conditions, the Xgen series meets the requirements of EN55022 Class B, without the need for external filtering.

IMMUNITY

70%

The Xgen series has been designed to meet, and tested to, the immunity specifications outlined below:

EN61000-4-2 Electrostatic Discharge Immunity

8kV Air discharge applied to Enclosure 6kV Contact with Enclosure

| EN61000-4-3 | Radiated Electromagnetic Field |
|---------------|--------------------------------------|
| 10Volts/metre | 80MHz to 2.5GHz applied to Enclosure |
| | |

EN61000-4-4 Fast Transients-Burst Immunity +/-2kV

EN61000-4-5 Input Surge Immunity

+/-2kV Common Mode 1.2/50 S (Voltage); 8/20uS (Current) +/- 1kV Differential Mode 1.2/50 S (Voltage) 8/20 S (Current)

| EN610 10 V/m | | Conducted Immunity 150KHz to 80MHz |
|------------------------|---------|---------------------------------------|
| EN610 | 00-4-11 | Voltage Dips |
| 0% | 1s | Criteria B |
| 40% | 100ms | Criteria B |

10ms

Further details on all tests are available from Excelsys.

Guidelines for Optimum EMC Performance

Criteria A

The Xgen series is designed to comply with European Normative limits (EN) for conducted and radiated emissions and immunity when correctly installed in a system. See performance levels attained above. However, power supply compliance with these limits is not a guarantee of system compliance. System EMC performance can be impacted by a number and combination items. Design consideration such as PCB layout and tracking, cabling arrangements and orientation of the power supply amongst others all directly contribute to the EMC performance of a system.

Cabling arrangements and PCB tracking layouts are the greatest contributing factors to system EMC performance. It is important that PCB tracks and power cables are arranged to minimise current carrying loops that can radiate, and to minimise loops that could have noise currents induced into them. All cables and PCB tracks should be treated as radiation sources and antenna and every effort should be made to minimise their interaction

- a. Keep all cable lengths as short as possible.
- b. Minimise the area of power carrying loops to minimise radiation, by using twisted pairs of power cables with the maximum twist possible.
- c. Run PCB power tracks back to back.
- d. Minimise noise current induced in signal carrying lines, by twisted pairs for sense cables with the maximum twist possible.
- e. Do not combine power and sense cables in the same harness
- f. Ensure good system grounding. System Earth should be a



Technical Resources

TECHNICAL RESOURCES



CONSULT AN ENGINEER

Our experienced applications engineering team are ready to provide design consultancy support including product recommendations to deliver optimal systems performance, and most importantly reduced time to market. We are committed to providing you with the highest performing, most reliable power solution ensuring the lowest total cost of ownership for you.

To contact one of our team please e-mail support@excelsys.com or telephone:

North America and Canada: +1 972 771 4544 Europe and Asia: +353 21 4354716



ONLINE RESOURCES

Our website www.excelsys.com hosts a wide range of easily accessible resources to support your power supply decision making. This includes:

- Application Notes: Supporting system designers in the integration of the Excelsys power supplies into their system.
- Safety and Environmental Certification: All our power supplies carry full international safety agency approvals including UL and EN for information technology and medical power supplies. To ease the system safety approvals we have provided our UL and CB certificates and we have also included our declarations of conformity. All Excelsys power supplies are REACH and RoHS compliant. Visit our Safety and Environmental section online where you can download our UL and CB safety certifications, and declarations of conformity to simplify system compliance.

- EMI Characterisation: Excelsys power supplies are component power supplies and as such are not subject to the EMC directive for EMI, however in order to ease system integration, Excelsys Technlogies has carried out extensive EMI characterization of our products against the relevant standards.
- HALT (Highly Accelerated Life Testing): Poor reliability, low MTBF, frequent field returns, high in-warranty costs and customer dissatisfaction are often the result of design and/or process weaknesses, even if a product has successfully passed qualification tests and burn-in. Excelsys Technologies subjects all our products to the HALT (Highly Accelerated Life Testing) process to uncover design and/or process weaknesses. During the HALT process, the product is subjected to progressively higher stress levels brought on by thermal dwells, vibration, rapid temperature transitions and combined environments.
- White Papers: Excelsys team of experienced power supply designers have an extensive knowledge of power supplies, technology and the challenges facing system designers. In conjunction with the Xgen Designers' Manual, and Application Notes, we also prepare White Papers on topics that are relevant to system designers.
- Designers' Manual: The Xgen Designers' Manual has been prepared to assist engineers and technicians in understanding correct design practices necessary to achieve the maximum versatility and performance from any of the Xgen family of products. Whatever your application, be it industrial electronics, medical equipment, automation equipment etc., the Xgen Designers' Manual provides the system designer with easy to implement integration instructions. The Designers' Manual is available in Section 4 of this catalogue or you can download it from the Excelsys website.
- **Datasheets:** There is an Xgen for every application. All data sheets can be viewed in Section 2 of this catalogue or downloaded online.



Design your own Power Supply with our Xgen Configurator

Whatever your power supply needs, Excelsys has a solution for you! Design you power supply using our Online Configurator. Simply input your volts and amps requirements, and we will do the rest. The Online Configurator will configure a power supply to meet your exact power requirements and it's available to ship immediately from our stocking distributors or can be ordered from our Online Shop.



Xgen Product Selector

The Xgen series of user configurable power supplies with its unique plug and play architecture allows system designers to define and build 'instant' custom power solutions with industry leading 17W/in³ power density and up to 90% efficiency.

Xgen powerPacs

The application specific 4 slot and 6 slot *powerPacs* provide up to 12 isolated DC outputs from 200W up to 1340W. The table below summarises the *powerPacs* by application and power level. Please refer to the specific product datasheets for full specifications.

| Application | Slots | 200W | 400W | 600W | 700W | 750W | 800W | 900W | 1000W | 1200W | 1340W |
|----------------------|--------|------|------|------|------|------|------|------|-------|-------|-------|
| Standard | 4 Slot | XLA | XLB | XLC | | XLD | | | | | |
| | 6 Slot | | XCA | | XCB | | | | XCC | XCD | XCE |
| Medical | 4 Slot | XMA | XMB | XMC | | XMD | | | | | |
| | 6 Slot | | XVA | | XVB | | | | XVC | XVD | XVE |
| Low Noise Standard | 4 Slot | XKA | XKB | XKC | | | | | | | |
| | 6 Slot | | XQA | | | | | XQB | | XQC | |
| Low Noise Medical | 4 Slot | XRA | XRB | XRC | | | | | | | |
| | 6 Slot | | XZA | | | | | XZB | | XZC | |
| Ultra Quiet Standard | 4 Slot | XTA | XTB | | | | | | | | |
| | 6 Slot | | XBA | XBB | | | XBC | | | | |
| Ultra Quiet Medical | 4 Slot | XNA | XNB | | | | | | | | |
| | 6 Slot | | XWA | XWB | | | XWC | | | | |
| Hi-Temp | 6 Slot | | XHA | XHB | | | | | | | |

Xgen powerMods

High Efficiency Plug and Play DC output modules to provide a wide range of DC output voltages from 1.0V up to 58.0V

| MODEL | Vrr Vtrim | nin Vpot | Vnom | Vmax | Imax | Watts |
|--------------|--------------|-------------|--------------|--------------|----------|------------|
| Xg1 | 1.0 | 1.5 | 2.5 | 3.6 | 50A | 125W |
| Xg2 | 1.5 | 3.2 | 5.0 | 6.0 | 40A | 200W |
| Xg3 | 4.0 | 6.0 | 12.0 | 15.0 | 20A | 240W |
| Xg4 | 8.0 | 12.0 | 24.0 | 30.0 | 10A | 240W |
| Xg5 | 8.0 | 24.0 | 48.0 | 58.0 | 6A | 288W |
| Xg7 | | 5.0 | 24.0 | 28.0 | 5A | 120W |
| Xg8 v1 v2 | | 5.0 5.0 | 24.0 24.0 | 28.0 28.0 | 3A 3A | 72W 72W |



Standard Xgen product options include: Conformal Coating, Low Acoustic Noise, Low Leakage Current, Extra Ruggedisation, Connector, Cabling & Mounting options, Thermal Signals and Reverse Fans. See Section 4.10 for more information.



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Excelsys supports customers and distributors worldwide. With experienced Applications Teams based in the US and in Europe, this allows Excelsys to offer immediate support and service to our Xgen customers.

Whatever your application, our dedicated team is ready to assist you in defining and implementation of the optimum Xgen solution. Check out our *"Contact Us"* page on our website **www.excelsys.com** and speak with your local Excelsys distributor.

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