

MEDICAL POWER SUPPLIES

PROVEN AND HIGHLY RELIABLE DC-DC AND AC-DC
MEDICAL POWER SOLUTIONS



PRECISION | POWER | PERFORMANCE | TRUST



Medical Power Supplies

Advanced Energy (AE) brings over 40 years of experience of leading edge power supply development and applications support to market with our revolutionary Artesyn, Excelsys, and UltraVolt medical power supplies. Our products deliver unrivaled levels of efficiency, flexibility, performance and reliability. Together with our network of qualified and experienced manufacturer representatives and distributors, we have established Advanced Energy as the brand of choice for customers seeking the highest performing, most reliable, and most cost-efficient power solutions.

Your Global Partner for Medical Power Supplies

Expertise

Easily Increase Functionality and Reduce Medical System Sizes

Advanced Energy’s intelligent power supplies include the Artesyn, Excelsys, and UltraVolt product lines. Benefit from high power densities, unmatched flexibility, and extensive features sets, which include 24 W-standby power, up to 24 outputs, 5000-m-altitude operation, analog, and digital management.

Unrivaled Reliability

Advanced Energy’s medical power supplies can deliver 25% longer lifetimes than competitor products. Our fanless and fan-cooled products provide efficiencies of up to 94%.

Meet Current and Future Safety Regulations

Many of our medical products carry full international safety certifications that meet IEC 60601-1 (third edition) and IEC 60601-1-2 (fourth edition EMC) requirements.

Deep Portfolio and Engineering Expertise

With Advanced Energy’s broad portfolio of medical solutions, we are well equipped to meet all your high and low voltage application requirements. Our medical power supplies are built using decades of engineering expertise.

Bio Life Sciences

- Immunoassay Systems
- In-Vitro Diagnostics
- Microbiology
- Centrifuges
- Clinical Chemistry

- Osmometers
- PCRs
- Electrophoresis
- Mass Spectrometry
- Scanning Electron Microscopes

Dental

- Gamma Imaging Systems
- CAD/CAM Systems
- Oral Care Equipment

- Digital Radiography
- X-Ray Machines

Imaging

- Ultrasound Scanners
- Computed Tomography (CT) Scan
- Positron Emission Tomography (PET)

- Magnetic Resonance Imaging (MRI)
- Nuclear Medicine
- X-Ray Machines

Laboratory

- Chemical Analysis Equipment
- Mass Analyzers
- Lab Automation

- Sterilization
- Electron Microscopes

Medical

- Ophthalmic Equipment
- Surgical Lasers
- Aesthetic Equipment
- Electroporation

- Dialysis
- Surgical Robotics
- Patient Monitoring
- Patient Therapy

Medical Power Supplies Selector Guide

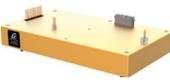
Advanced Energy offers a broad portfolio of medical power supplies from its Artesyn, Excelsys, and UltraVolt product lines.

DC-DC

Low Voltage DC-DC Converters

<p>ASA</p> <p>Output voltage -15 to 15 V</p> <p>Max output power 6 W</p> 	<p>AEE</p> <p>Output voltage -15 to 24 V</p> <p>Output power 15 and 20 W</p> 
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High Voltage DC-DC Modules

<p>High Power C</p> <p>Output voltage 125 V to 60 kV</p> <p>Output power 60, 125, or 250 W</p> 	<p>A</p> <p>Output voltage 62 V to 40 kV</p> <p>Output power 4, 15, 20, and 30 W</p> 
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<p>LE</p> <p>Output voltage 1 to 30 kV</p> <p>Output power 4, 20, and 30 W</p> 	<p>AA</p> <p>Output voltage 62 V to 6 kV</p> <p>Output power 4, 20, and 30 W</p> 
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<p>HVA</p> <p>Output voltage 1 to 20 kV</p> <p>Max output power 2 W</p> 	<p>US</p> <p>Output voltage 200 to 500 V</p> <p>Max output power 0.1 W</p> 
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AC-DC

Low Voltage AC-DC Power Supplies

MODULAR

<p>UltiMod</p> <p>Up to 12 outputs, ranging from 1 to 58 V</p> <p>Max output power 1200 W</p> 	<p>iMP</p> <p>Up to 21 outputs, ranging from 2 to 60 V</p> <p>Max output power 1500 W</p> 	<p>uMP</p> <p>Up to 12 outputs, ranging from 0.9 to 60 V</p> <p>Max output power 1800 W</p> 
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<p>CoolX1800</p> <p>Up to 12 outputs, ranging from 1 to 200 V</p> <p>Max output power 1800 W</p> 	<p>CoolX3000</p> <p>Up to 24 outputs, ranging from 1 to 200 V</p> <p>Max output power 3000 W</p> 	<p>iVS</p> <p>Up to 24 outputs, ranging from 2 to 60 V</p> <p>Max output power 4920 W</p> 
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<p>iHP</p> <p>Up to 8 outputs, ranging from 0.6 to 1000 V</p> <p>Max output power 24,000 W</p> 	<p>Fanless CoolX600</p> <p>Up to 8 outputs, ranging from 1 to 200 V</p> <p>Max output power 600 W</p> 	<p>Fanless CoolX1000</p> <p>Up to 12 outputs, ranging from 1 to 200 V</p> <p>Max output power 1000 W</p> 
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DISTRIBUTED/ENCLOSED

<p>LCM</p> <p>Output voltage 12 to 72 V</p> <p>Max output power 3000 W</p> 	<p>Xsolo</p> <p>Output voltage 14 to 58 V</p> <p>Max output power 1000 W</p> 	<p>Xsolo BF</p> <p>Output voltage 14 to 58 V</p> <p>Max output power 1000 W</p> 
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Our power solutions are designed for optimum performance and reliability, and to meet the latest regulatory and safety standards such as IEC 60601-1 3rd Edition, IEC 60601-1-2 4th Edition EMC, 2XMOPP,

and low leakage current. Some products are dual-fused, some are suitable for B or BF rated applications. Please consult individual data sheets for specific details.

FANLESS SINGLE OUTPUT

LCC250

Output voltage
10.8 to 55.2 V

Max power output
250 W



LCC600

Output voltage
12 to 54 V

Max power output
600 W



CS1000

Output voltage
1 to 58 V

Max power output
1000 W



FANLESS MODULAR

CoolX600

Up to 8 outputs,
ranging from 1 to 200 V

Max output power
600 W



CoolX1000

Up to 12 outputs,
ranging from 1 to 200 V

Max output power
1000 W



ADAPTERS

DA

5 V / 10 W



OPEN FRAME

2x4

NPS20-M

4.5 to 57.6 V / 25 to 40 W

NPS40-M

4.5 to 57.6 V / 45 to 60 W

NPT40-M

-15 to 24 V / 45 to 55 W

NPS60-M

4 to 28.8 V / 60 W

LPT100-M

-16.5 to 28.8 V / 80 to 130 W

LPS100-M

4.5 to 59.4 V / 100 to 150 W

CPS250-M

12 to 52.8 V / 150 to 250 W



3x5

LPS40-M

5 to 24 V / 40 to 55 W

LPS60-M

11.4 to 26.4 V / 60 to 80 W

LPT60-M

-15 to 15 V / 60 to 80 W

TLP150

10.8 to 26.4 V / 100 to 150 W

LPQ200-M

13.2 to 26.4 V / 100 to 200 W

LPS200-M

4.5 to 52.8 V / 125 to 250 W

LPS360-M

12 to 52.8 V /
200 to 360 W



4x6

CNS650-MU

12 to 52.8 V / 400 to 650 W



PFC Voltage AC-DC Modules

PFC

FULL BRICK

AIF06

Output voltage 400 V

Max output power 2400 W



FULL BRICK

AIF04

Output voltage 380 V

Max output power 1600 W



3/4 BRICK

AIT

Output voltage 393 V

Max output power 150 W



1/4 BRICK

AIQ

Output voltage 393 V

Max output power 75 W



SL Power External Adapters

IEC 60601-1 Safety Certified



Standard AC-DC ^{1,2}							
Product Series	Descriptions	Output Power Watts	Outputs	Available Output Voltages	Dimensions, mm	Protection Class ³	EMI Class
SLE06 	Wall Mount	6	1	5, 9, 12; 4-12 ²	74x43x31	Class II	B, B
SLE12 	Wall Mount	12	1	5, 12, 18, 24; 4-24 ²	76x31x49	Class II	B, B
SLE18 	Wall Mount	18	1	5, 12, 18, 24; 5-24 ²	88x30x57	Class II	B, B
SLE24 	Wall Mount	24	1	9, 12, 24, 48; 6-52 ²	88x30x57	Class II	B, B
SLE36N 	Desktop	36	1	9, 12, 24, 36; 9-36 ²	104x58x30	Class II	B, B
SLE48 	Desktop	48	1	9, 12, 15, 18, 24, 48; 9-54 ²	122x51x32	Class I & II	B, B
SLE60SPD 	Desktop	60	1	5, 9, 12, 15, 20 ⁴	52x88x28	Class II	B, B
SLE65 	Desktop	65	1	9, 12, 15, 18, 24, 48; 9-54 ²	125x62x34	Class I & II	B, B
SLE90 	Desktop	90	1	12, 19, 24, 48; 12-52 ²	146x60x36	Class I & II	B, B

1. Power supplies are not medical equipment (applied parts), medical product manufacturers shall take responsibility for further evaluation of class B/BF/CF compliance of their end product.
2. Available voltages, contact for details.
3. SLE & GE Models are both Medical & ITE Rated; ME Series models are Medically rated only, TE models are ITE rated only.
4. Output Voltage Programmable vis USB-PD protocol

SL Power External Adapters

IEC 60601-1 Safety Certified



Standard AC-DC ^{1,2}							
Product Series	Descriptions	Output Power Watts	Outputs	Available Output Voltages	Dimensions, mm	Protection Class ³	EMI Class
ME10 / TE10 	Wall Mount	12	1	5, 5.9, 7.5, 9, 12, 15, 24	84x47x31	Class I & II	B, B
ME20 / TE20 	Wall Mount	20	1	5, 5.9, 7.5, 9, 12, 15, 24, 48	84x47x31	Class I & II	B, B
ME30 / TE30 	Wall Mount	30	1	5, 9, 12, 15, 18, 24, 48	96x54x31	Class I & II	B, B
ME40 / TE40 	Wall Mount	40	1	5, 12, 15, 18, 24	96x54x31	Class I & II	B, B
ME60 / TE60 	Desktop	60	1	5, 9, 12, 15, 18, 24, 48	108x68x33	Class I & II	B, B
ME90 / TE90 	Desktop	90	1	12, 15, 18, 24	66x151x34	Class I & II	B, B
GE150 	Desktop	150	1	12, 15, 18, 24, 48	72x165x37	Class I & II	B, B
ME150 / TE150 	Desktop	150	1	12, 15, 18, 24, 48	72x165x37	Class I & II	B, B
ME240 / TE240 	Desktop	240	1	12, 24, 28, 48	215x108x47	Class I & II	B, B

1. Power supplies are not medical equipment (applied parts), medical product manufacturers shall take responsibility for further evaluation of class B/BF/CF compliance of their end product.
2. Available voltages, contact for details.
3. SLE & GE Models are both Medical & ITE Rated; ME Series models are Medically rated only, TE models are ITE rated only.
4. Output Voltage Programmable vis USB-PD protocol

SL Power AC-DC Internal

IEC 60601-1 Safety Certified



Standard AC-DC								
Product Series	Descriptions	Output Power Watts		Outputs	Available Output Voltages	Dimensions, inch	Protection Class	EMI Class
		Free Air	Forced Air					
GB10 	Open Frame	10	10	1	5V, 12V, 15V, 24V, 48V	1.6 X 3.4 X 1.0	I, II	B, B
GB10-P 	Open Frame, PCB Mount	10	10	1	5V, 12V, 15V, 24V, 48V	1.02 x 2.05 x 0.98	I, II	B, B
GB20 	Open Frame	20	20	1	5V, 12V, 15V, 24V, 48V	1.6 x 3.4 x 1.0	I, II	B, B
GB30 	Open Frame	30	30	1	5V, 12V, 15V, 24V, 48V	1.9 x 4.0 x 1.0	I, II	B, B
GB40 	Open Frame	40	40	1	5V, 12V, 15V, 24V, 48V	2.0 x 4.0 x 1.0	I, II	B, B
SLB65 	Open Frame	65	65	1	5V, 12V, 15V, 24V, 48V	2 x 3 x 1.2	I, II	B, B
MINT3110 	Open Frame	80	110	3	5V/12V/-12V 5V/15V/-15V 5V/24V/-24V	2 x 4 x 1.3	I, II	B, A
SLB125 	Open Frame	85	125	1	12V, 15V, 24V, 48V	2 x 4 x 1.2	I, II	B, B
GB130Q 	Open Frame	100	130	4	5V/12V/-12V/12V 5V/12V/-15V/15V 5V/24V/-12V/12V 5V/24V/-15V/15V	3 x 5 x 1.5	I	B, B

SL Power AC-DC Internal

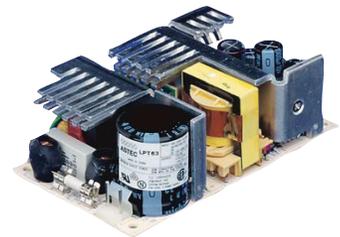
IEC 60601-1 Safety Certified



Standard AC-DC								
Product Series	Descriptions	Output Power Watts		Outputs	Available Output Voltages	Dimensions, inch	Protection Class	EMI Class
		Free Air	Forced Air					
 NGB150	Open Frame	120	150	1	12V, 15V, 19V, 24V, 48V	2 x 4 x 1.4	I, II	B, B
 LU225	Open Frame	150	225	1	12V, 24V, 36V, 48V, 56V	2.2 x 4.1 x 1.5	I	B, B
 NGB250	Open Frame	180	250	1	12V, 15V, 24V, 48V	2 x 4 x 1.4	I, II	B, B
 SLB300	Open Frame	200	300	1	12V, 15V, 24V, 48V	3 x 5 x 1.4	I, II	
 GU300	Open Frame, PMBus	200	300	1	12V, 15V, 18V, 24V, 48V	3 x 5 x 1.5	I	
 NGB425	Open Frame	270	425	1	12V, 15V, 24V, 48V	3 x 5 x 1.5	I, II	B, B
 NGB660	Open Frame	440	660	1	12V, 15V, 24V, 48V	4 x 6 x 1.6	I, II	B, B
 NGB800	Open Frame	650	800	1	12V, 15V, 24V, 48V	5 x 8 x 1.6	I, II	B, B
 NGB1200	Enclosed w/fan	N/A	1200	1	12V, 15V, 24V, 48V	3.3 x 10.8 x 1.6	I, II	B, A

Artesyn AC-DC Power Supplies

IEC 60601-1 Safety Certified



Standard AC-DC ^{1,2}								
Product Series	Descriptions	Output Power Watts		Outputs	Available Output Voltages	Dimensions	Protection Class	EMI Class
		Free Air	Forced Air					
DA10-M ³ 	External Adapter (wall mount)	10	10	1	5 V	2.36 x 1.10 x 2.40 in	II	B
NPS20-M 	Open-frame	25	40	1	5 V, 12 V, 15 V, 24 V, 48 V	2.00 x 4.00 x 1.00 in	I, II	B, A
LPS40-M 	Open-frame (opt. enclosure)	40	55	1	5 V, 12 V, 15 V, 24 V	5.00 x 3.00 x 1.20 in	I	A
LPT40-M 	Open-frame (opt. enclosure)	40	55	3	5 V, 12 V, -12 V, 15 V, -15 V, 24 V	5.00 x 3.00 x 1.20 in	I	A
NPS40-M 	Open-frame (opt. enclosure)	45	60	1	5 V, 12 V, 15 V, 24 V, 48 V	4.00 x 2.00 x 1.00 in	I, II	B, A
NPT40-M 	Open-frame (opt. enclosure)	45	55	3	5 V, 12 V, -12 V	4.00 x 2.00 x 1.00 in	I, II	B
NPS60-M 	Open-frame	60	60	1	5 V, 12 V, 24 V	2.00 x 4.00 x 1.00 in	I, II	B, A
LPS60-M 	Open-frame (opt. enclosure)	60	80	1	12 V, 15 V, 24 V	5.00 x 3.00 x 1.65 in	I	A
LPT60-M 	Open-frame (opt. enclosure)	60	80	3	5 V, 12 V, -12 V, 15 V, -15 V	5.00 x 3.00 x 1.65 in	I	A

1. All products comply with the international standard IEC 60601-1 for medical devices, defined as Medical Electrical Equipment and Systems
2. Individual product approvals are stated in the publicly published product data sheets and technical reference notes at www.advancedenergy.com
3. Models tested to comply according to the medical standard IEC 60601-1-2 4th Edition

Artesyn AC-DC Power Supplies

IEC 60601-1 Safety Certified



Standard AC-DC ^{1,2}								
Product Series	Descriptions	Output Power Watts		Outputs	Available Output Voltages	Dimensions	Protection Class	EMI Class
		Free Air	Forced Air					
LPT100-M 	Open-frame (opt. enclosure)	80	130	3	3.3 V, 5 V, 12 V, -12 V, 15 V, -15 V, 24 V	4.00 x 2.00 x 1.28 in	I	B
LPS100-M 	Compact Open-frame (opt. enclosure)	100	150	1	5 V, 12 V, 15 V, 24 V, 48 V	4.00 x 2.00 x 1.29 in	I	B
LPQ200-M 	Open-frame	100	200	4	3.3 V, 5 V, 12 V, -12 V, 24 V	5.00 x 3.00 x 1.42 in	I	B
LPS170-M 	U-channel (optional cover)	110	175	1	3.3 V, 5 V, 12 V, 15 V, 24 V, 48 V	4.25 x 8.50 x 1.50 in	I	B
LPS200-M 	Compact Open-frame (opt. enclosure)	125	250	1	5 V, 12 V, 15 V, 24 V, 48 V	5.00 x 3.00 x 1.29 in	I	B
TLP150 Medical 	Open-frame (opt. enclosure)	150	150	1	12 V, 24 V	5.00 x 3.00 x 1.25 in	I	B
CPS250-M ³ 	Open-frame	155	250	1	12 V, 24 V, 48 V	2.00 x 4.00 x 1.30 in	I, II	B
LPS360-M ³ 	Open-frame (opt. enclosure)	200	360	1	12 V, 15 V, 24 V, 48 V	3.00 x 5.00 x 1.57 in	I, II	B

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Artesyn AC-DC Power Supplies

IEC 60601-1 Safety Certified



Standard AC-DC ^{1,2}								
Product Series	Descriptions	Output Power Watts		Outputs	Available Output Voltages	Dimensions	Protection Class	EMI Class
		Free Air	Forced Air					
LCC250 	Convection/Conduction Mounting	250	250	1	12 V, 24 V, 48 V	4.00 x 7.00 x 1.10 in	I	B
LCM300 ³ 	Bulk Front End	300	300	1	12 V, 15 V, 24 V, 36 V, 48 V	1.61 x 4.00 x 7.00 in	I	B
CNS650-MU ³ 	Open-frame	400	650	1	12 V, 24 V, 48 V	4.00 x 6.00 x 1.50 in	I, II	B
μMP04 ³ 	Configurable	400	600	1 to 12	0.9 - 60 V/4-40 A	10.11 x 3.50 x 1.57 in	I	B
LCC600 ³ 	Conduction Cooled	600	600	1	12 V, 24 V, 28 V, 36 V, 48 V	4.00 x 9.00 x 1.57 in	I	B
LCM600 ³ 	Bulk Front End	600	600	1	12 V, 15 V, 24 V, 36 V, 48 V	4.50 x 7.50 x 2.40 in	I	B
iMP4 	Configurable & Intelligent	750	1100	1 to 21	2 - 60 V/2 - 150 A	10.00 x 5.00 x 2.50 in	I	B
LCM1000 ³ 	Bulk Front End	1000	1000	1	12 V, 15 V, 24 V, 36 V, 48 V	2.50 x 5.20 x 10.00 in	I	B
iMP8 	Configurable & Intelligent	1000	1200	1 to 21	2 - 60 V/2 - 150 A	10.00 x 7.00 x 2.50 in	I	B

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Artesyn AC-DC Power Supplies

IEC 60601-1 Safety Certified



Standard AC-DC ^{1,2}								
Product Series	Descriptions	Output Power Watts		Outputs	Available Output Voltages	Dimensions	Protection Class	EMI Class
		Free Air	Forced Air					
 µMP10 ³	Configurable	1000	1200	1 to 12	0.9 - 60 V/4 - 40 A	10.11 x 5.00 x 1.57 in	I	B
 µMP16 ³	Configurable	1000	1800	1 to 12	0.9 - 60 V/4 - 40 A	10.11 x 5.00 x 1.57 in	I	B
 iMP1	Configurable & Intelligent	1200	1500	1 to 21	2 - 60 V/2 - 150 A	11.00 x 8.00 x 2.50 in	I	B
 LCM1500 ³	Bulk Front End	1500	1500	1	12 V, 15 V, 24 V, 36 V, 48 V	2.50 x 5.20 x 10.00 in	I	B
 iVS1, iVS6	Configurable & Intelligent	1500	3210	1 to 24	2 - 60 V/2 - 150 A	11.00 x 5.00 x 5.00 in	I	B
 iVS3, iVS8	Configurable & Intelligent	1800	4920	1 to 24	2 - 60 V/2 - 150 A	11.00 x 8.00 x 5.00 in	I	B
 LCM3000 ³	Bulk Front End	3000	3000	1	12 V, 18 V, 24 V, 36 V, 48 V, 72 V	2.50 x 7.00 x 10.9 in	I	B
 iHP ³	Configurable & Intelligent	-	12000 (iHP12) 24000 (iHP24)	4 (iHP12) 8 (iHP24)	12 V, 24 V, 48 V, 80 V, 125 V, 250 V	5.22 x 19.00 x 17.60 in (iHP12) 5.22 x 19.00 x 27.90 in (iHP24)	I	B

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Artesyn DC-DC Power Supplies

Medical Safety to UL / CSA / IEC / EN 60601-1 3rd Edition



Standard DC-DC							
	Input Voltage	Output 1 Voltage	Output 2 Voltage	Dimensions	I/O Isolation	Efficiency	Model Number
20 W	9 to 18 V	5 V @ 4 A		2.00 x 1.00 x 0.47 in	4200 VACrms	85%	AEE04A12-M
	9 to 18 V	12 V @ 1.67 A		2.00 x 1.00 x 0.47 in	4200 VACrms	89%	AEE02B12-M
	9 to 18 V	15 V @ 1.33 A		2.00 x 1.00 x 0.47 in	4200 VACrms	88%	AEE02C12-M
	9 to 18 V	24 V @ 0.84 A		2.00 x 1.00 x 0.47 in	4200 VACrms	89%	AEE02H12-M
	9 to 18 V	12 V @ 0.84 A	-12 V @ 0.84 A	2.00 x 1.00 x 0.47 in	4200 VACrms	89%	AEE02BB12-M
	9 to 18 V	15 V @ 0.67 A	-15 V @ 0.67 A	2.00 x 1.00 x 0.47 in	4200 VACrms	89%	AEE02CC12-M
	18 to 36 V	5 V @ 4 A		2.00 x 1.00 x 0.47 in	4200 VACrms	87%	AEE04A24-M
	18 to 36 V	12 V @ 1.67 A		2.00 x 1.00 x 0.47 in	4200 VACrms	89%	AEE02B24-M
	18 to 36 V	15 V @ 1.33 A		2.00 x 1.00 x 0.47 in	4200 VACrms	88%	AEE02C24-M
	18 to 36 V	24 V @ 0.84 A		2.00 x 1.00 x 0.47 in	4200 VACrms	90%	AEE02H24-M
	18 to 36 V	12 V @ 0.84 A	-12 V @ 0.84 A	2.00 x 1.00 x 0.47 in	4200 VACrms	90%	AEE02BB24-M
	18 to 36 V	15 V @ 0.67 A	-15 V @ 0.67 A	2.00 x 1.00 x 0.47 in	4200 VACrms	89%	AEE02CC24-M
	36 to 75 V	5 V @ 4 A		2.00 x 1.00 x 0.47 in	4200 VACrms	88%	AEE04A48-M
	36 to 75 V	12 V @ 1.67 A		2.00 x 1.00 x 0.47 in	4200 VACrms	89%	AEE02B48-M
	36 to 75 V	15 V @ 1.33 A		2.00 x 1.00 x 0.47 in	4200 VACrms	88%	AEE02C48-M
	36 to 75 V	24 V @ 0.84 A		2.00 x 1.00 x 0.47 in	4200 VACrms	88%	AEE02H48-M
	36 to 75 V	12 V @ 0.84 A	-12 V @ 0.84 A	2.00 x 1.00 x 0.47 in	4200 VACrms	88%	AEE02BB48-M
	36 to 75 V	15 V @ 0.67 A	-15 V @ 0.67 A	2.00 x 1.00 x 0.47 in	4200 VACrms	89%	AEE02CC48-M

Artesyn Power Factor Correction (PFC)

Wide-range AC input, 390 VDC output



Standard DC-DC							
	Input Voltage	Output 1 Voltage	Output 2 Voltage	Dimensions	I/O Isolation	Efficiency	Model Number
75 W	100 to 122 V	393 V @ 0.25 A		2.30 x 1.45 x 0.50 in	Non-Isolated	90%	AIQ00ZPFC-01NL
720 W	85 to 264 V	393 V @ 2.08 A		3.50 x 2.40 x 0.50 in	Non-Isolated	93%	AIT02ZPFC-01NL
1600 W	85 to 264 V	380 V @ 4.20 A		4.60 x 2.40 x 0.50 in	Non-Isolated	95%	AIF04ZPFC-01L
	85 to 264 V	380 V @ 4.20 A		4.60 x 2.40 x 0.50 in	Non-Isolated	95%	AIF04ZPFC-02L
2400 W	85 to 264 V	400 V @ 6 A		4.60 x 2.40 x 0.55 in	Non-Isolated	97%	AIF06ZPFC-01L
	85 to 264 V	400 V @ 6 A		4.60 x 2.40 x 0.55 in	Non-Isolated	97%	AIF06ZPFC-02L

Excelsys Medical Power Supplies

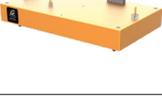


Standard AC-DC									
Product Series	Descriptions	Output Power Watts	Free Air	Forced Air	Outputs	Available Output Voltages	Dimensions	Protection Class	EMI Class
 CX600/CX1000	Fanless 600 W/ 1000 W, Intelligent, Modular Power Supply Platform	CX600: 600 CX1000: 1000	CX600: 600W CX1000: 1000W Natural Convection Cooled	Higher Ambient Temperature	CX600: Up to 8 CX1000: Up to 12	1 - 200 V	CX600: 8.50 X 4.50 in X 1U CX1000: 10.00 X 6.50 X 1U	Class I	B ¹
 CS1000	Innovative, Fanless, 1U, High Efficiency, 1000 W, Single Output Power Supplies	1000	1000 W	Higher Ambient Temperature	1	1 - 58 V	10.30 x 5.00 x 1.50 in	Class I	B ¹
 Xsolo/Xsolo BF	500 and 1000 W Ultra Compact, High-Reliability Single Output Power Supplies	1008	XS500 - 500 W	XS1000 - 1000 W XB1000 - 1000 W	1	24 V, 36 V, 48 V	500 W: 30.00 x 5.00 x 1.50 in 1000 W: 9.30 x 5.00 x 1.57 in	Class I	B ¹
 UltiMod	High Efficiency, High Reliability, Modular Configurable Power Supplies	1200	-	Up to 1200 W	Up to 12	1 - 58 V	UX4: 10.20 x 3.50 x 1U UX6: 10.30 x 5.00 x 1U	Class I	B ¹
 CX1800	1800 W Intelligent, Modular Power Supplies	1800	-	1800 W	Up to 12	1 - 200 V	10.50 x 5.00 x 1U	Class I	B ¹
 CX3000	High Efficiency, Intelligent and reliable 3000 W Modular Power Supplies	3000	-	3000 W Higher Ambient Temperature	Up to 24	1 - 200 V	11.80 x 5.20 x 4.70 in	Class I	B ¹
 FlexiCharge	High voltage 1.5kJ capacitor charger and low voltage	Charger: 1500W AC-DC: 800W	-	Up to 2300 W (1500W + 800W)	Up to 10	0 - 1000 VDC	13.70 x 5.70 x 4.17 in	Class I	A

1. Consult AE applications for system level compliance

UltraVolt Medical Power Supplies



Standard DC-DC								
Product Series	Descriptions	Output Power Watts	Output	Input Voltage	Output Voltage	Dimensions	Ripple	Example Model Number
 A Series	Precision DC-DC Regulated Supplies	4, 15, 20, or 30	Single	12 V on 4 W 24 V on 15, 20, or 30 W	62 V to 40 kV	1/16 to 6A Series: 3.72 x 1.52 x 0.82 in	To 100 ppm	1/16A12-P4 40A24-N30
						10A Series: 3.72 x 1.52 x 0.98 in		
						15A Series: 4.70 x 1.52 x 0.98 in		
						20A Series: 5.70 x 1.52 x 1.16 in		
						25A/30A/35A Series: 6.90 x 1.60 x 1.16 in 40A Series: 7.96 x 1.60 x 1.40 in		
 AA Series	Miniature PCB-Mount, Regulated DC-DC Converters	4, 20, or 30	Single	12 V on 4 W 24 V on 20, or 30 W	62 V to 6 kV	2.97 x 1.50 x 0.81 in	To 100 ppm	1/16AA24-P20 6AA12-N4
 High Power C Series	Capacitive Charging, DC-DC Power Supplies	60, 125, 250	Single	24 V	125 V to 60 kV	1/8C to 6C 60 & 125W: 4.00 x 4.50 x 1.06 in	< 10,000 ppm	1/8C24-N125
						1/8C to 6C 250W: 8.00 x 4.50 x 1.06 in		6C24-P250
						8C to 30C 60 & 125W: 8.00 x 4.50 x 1.06 in		8C24-P60
						8C to 30C 250W: 9.25 x 4.50 x 2.03 in		30C24-N125
						40C to 60C: 14.00 x 4.50 x 2.50 in		50C24-P250
 LE Series	High Precision DC-DC Regulated Supplies	4, 15 (10 & 30 only), 20 (1 to 6 only), 30	Single	24 V	1 to 30 kV	1 - 15 kV: 6.00 x 3.81 x 1.50 in 20 - 30 kV: 7.28 x 3.94 x 1.50 in	10 ppm	1LE24-P4 30LE24-N30
 HVA	Precision DC-DC High Voltage Amplifiers	1, 1.5, or 2	Single	24 V	1 to 20 kV	Small: 6.00 x 3.81 x 1.25 in	500 ppm	1HVA24-P1
						Large: 9.75 x 6.50 x 1.50 in		20HVA24-BP1
 US Series	Precise, Micro-Size High Voltage Power Supplies	100 mW	Single	5, 12	200 to 500 V	1.00 x 0.81 x 0.43 in	< 100 ppm	0.5US5-P0.1
 AEQ	Ultra-miniature DC to DC converters supply up to 600VDC at 0.5 Watts	0.5W	Single or Dual	5	Up to 600V (single) or +/-300V (dual)	0.5 x 0.5 x 0.5 in	<1%	AEQ5-300FL0.5

Medical-Grade Power Supplies: What's Different?



Internal Power Supply Design

Medical-grade power supplies are built to meet IEC 60601-1 medical equipment safety standard.



Design Cycles

Medical equipment often requires extended design cycles and collaboration with power supply vendors.



Longer Life Expectancies

Medical equipment is expected to last. Your power supply must be able to handle longer product life cycles.

Beyond the common volts, amps, and safety approval considerations used to select power supplies for OEM equipment, below is a checklist to simplify finding the right medical power supply for your device.

The Decision Making Process

01

Define and specify the power requirements as early as possible in the design process

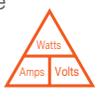
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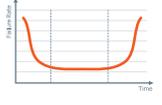
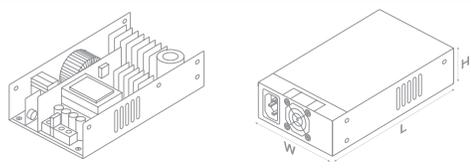
Use a standard off-the-shelf medical power supply if possible and consider configurable solutions before jumping to a custom design option

03

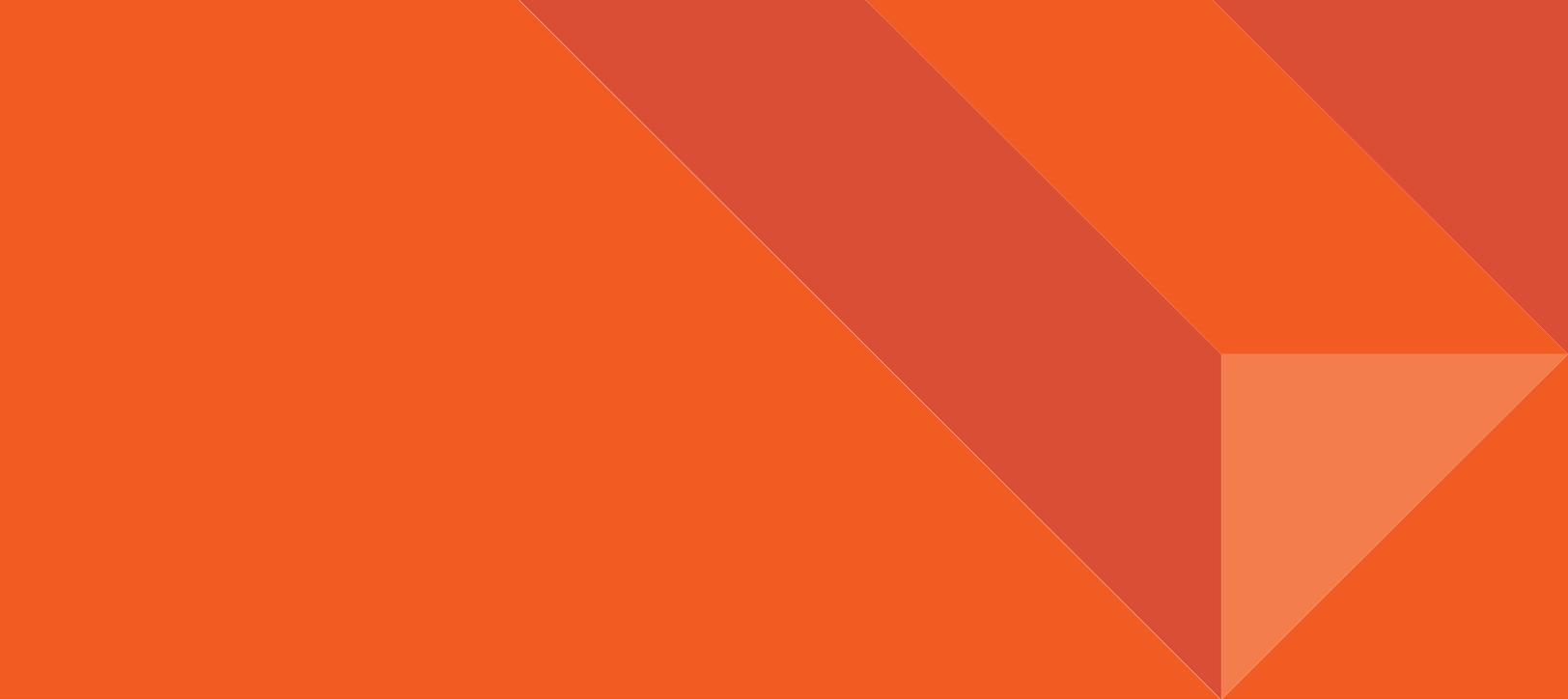
Evaluate your potential supplier's quality system



Electrical Requirements			
<p>01 Input/output requirements DC-DC or AC-DC</p> 	<p>02 Input line voltage</p>	<p>03 Class I (3 wire AC input) or Class II (2 wire AC input)</p> 	<p>04 Number of outputs</p> 
<p>05 Voltage and current of each output</p>	<p>06 Output wattage of each output $W = V \times A$</p> 	<p>07 Calculate total power supply wattage by adding all the outputs' wattage</p>	<p>08 Dual fusing</p> 
<p>09 EMC/EMI (radiated and conducted)</p> 	<p>10 Efficiency</p>	<p>11 Leakage (ultra-low leakage of less than 150 μA is available)</p>	<p>12 Holdup time</p> <p>13 Control and monitoring functions</p>

Mechanical Requirements			
<p>01 Physical Size L x W x H, weight</p>	<p>02 Form factor or chassis type</p>	<p>03 Mounting requirements</p>	<p>04 Cooling, forced air, convection or conduction</p>
<p>05 Thermal considerations, airflow, temperature rise</p>	<p>06 Ruggedized for enhanced protection from shock and vibration</p>	<p>07 Acoustic noise, especially in noise sensitive applications</p>	<p>08 Electrical connections, input and output of power supplies <i>Type of mating connectors, wiring harness, etc.</i></p>
<p>09 Reliability: MTBF, Life and QAV</p> 	<p>10 Sensitivity to vibrations</p>		

Compliance/Environmental			
<p>01 Type B/BF</p> 	<p>02 Hospital/clinic/in-home/portable/fixed</p>	<p>03 RoHS2 (Removal of Hazardous Substances)</p> 	<p>04 Ambient temperature requirements</p> 
<p>05 Altitude (operation)</p>	<p>06 Medical safeties: · IEC 60601-1 · Patient contact/vicinity (MOPP/MOPP)</p>	<p>07 Airborne/ship/ambulance</p>	<p>08 WEEE (recycling)</p> 



ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than three decades to perfecting power for its global customers. We design and manufacture highly engineered, precision power conversion, measurement and control solutions for mission-critical applications and processes.

Our products enable customer innovation in complex applications for a wide range of industries including semiconductor equipment, industrial, manufacturing, telecommunications, data center computing, and medical. With deep applications know-how and responsive service and support across the globe, we build collaborative partnerships to meet rapid technological developments, propel growth for our customers, and innovate the future of power.

PRECISION | POWER | PERFORMANCE | TRUST

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