Advanced Energy

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.

Modified Standard and Custom Power Solutions

Fast, cost-effective solutions engineered to meet your technical and regulatory demands.

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.

Medical Imaging	■ Magnetic Resonance Imaging (MRI) ■ Ultrasound	■ CT ■ PET/SPECT ■ X-Ray
Life Science	■ Analytical Instruments ■ Analyzers ■ Mass Spec	■ SEM ■ Electroporation
Electrosurgery	■ HIFU ■ PEF/PFA	■ Microwave ■ RF
Medical Lasers	■ Aesthetic Lasers ■ Ophthalmic	■ Surgical
Patient Care	■ Vital Signs Monitoring ■ Infusion Pumps	■ Dialysis

Medical Power Supplies Selector Guide

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

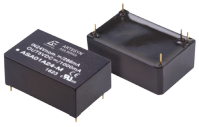
DC-DC

Low Voltage DC-DC Converters

ASA

Output voltage
-15 to 15 V

Max output power
6 W



AEE

Output voltage
-15 to 24 V

Output power
15 and 20 W

High Voltage DC-DC Modules

Miniature DC-DC

AEQ, US, V, M, D, MPM Series

Output Voltage 62 V to 6 kV

Medium Power

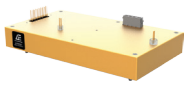
AA, A, 10A-15A, 20A, 25A, LE, E Series

Output Voltage: 62 V to 40 kV

High Power DC-DC

AEQ, US, V, M, D, MPM Series

Output Voltage 62 V to 6 kV



High Voltage Amplifiers

HVA Series

Output Voltage: Up to 20 kV Unipolar & Bipolar

AC-DC

Low Voltage AC-DC Power Supplies

MODULAR

UltiMod

Up to 12 outputs, ranging from 1 to 58 V

Max output power
1200 W

iMP

Up to 21 outputs, ranging from 2 to 60 V

Max output power
1500 W

uMP

Up to 12 outputs, ranging from 0.9 to 60 V

Max output power
1800 W

CoolX1800, CoolX3000

Up to 3000 W
Up to 12 Outputs

iVS

Up to 4920 W
1 to 24 Outputs

iHP

Up to 8 outputs, ranging from 0.6 to 1000 V

Max output power
30 kW

Fanless CoolX600, CoolX1000

Up to 1000 W
6 Outputs

XF Series

Up to 6 Outputs
1000 W
MIL Standards

NeoPower NEW

Up to 4000 W
Up to 8 Outputs

DISTRIBUTED/ENCLOSED

LCM

Output voltage
12 to 72 V

Max output power
3000 W

Xsolo

Output voltage
14 to 58 V

Max output power
1000 W

Xsolo BF

Output voltage
14 to 58 V

Max output power
1000 W

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

CAPACITOR CHARGER

FlexiCharge NEW
Up to 4 kJ Capacitor Charger
Up to 4800 W Total Power

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

ME
10 W to 240 W

GE
150 W

SLE
6 W to 90 W

OPEN FRAME

2 x 4
NPS20-M/40-M/60-M
20 to 60 W

GB40
Up to 40 W

NPT40-M/LPT100-M/MINT3110
40 to 130 W Triple Output

LPS100-M
Up to150 W

SLB125
Up to 125 W

NGB150 / 250
150 to 250 W

LU225
Up to 225 W

CPS250-M
Up to 250 W

4 x 6
CNS650-MU
400 to 650 W

NGB660
560 to 650 W

3 x 5
LPS40/40-M/60/60-M/200-M/250-M/360-M
40 to 360 W

LPT60
60 to 80 W

GB130Q / LPQ200-M
130 to 200 W Quad Output

TLP150
100 to 150 W

SLB300
300 W

NGB425
365 to 425 W

5 x 8
NGB800
800 W Single Output

3.3 x 10.8
NGB1200
1200 W Single Output

Type CF NEW
NCF150
150 W

NCF250
250 W

NCF425
425 W

NCF660
660 W

Other Products/-Sizes
GB10P – 1" x 2"
10 W PCB Mount Single Output

GB10 – 1.6" x 3.4"
10 W to 12 W Single Output

GB20 – 1.6" x 3.4"
15 W to 20 W Single Output

GB30 – 1.9" x 4.0"
20 W to 30 W Single Output

SLB65 – 2" x 3"
40 W to 65 W Single Output

MB65 – 2" x 3.5"
65 W Single Output

NOTE: For Type BF products, please refer to page 10 of the brochure.

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
SLE33SPD NEW 	Desktop	33	1	5, 9, 12, 15 20	90.5x48x33.5	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 	Dekstop	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

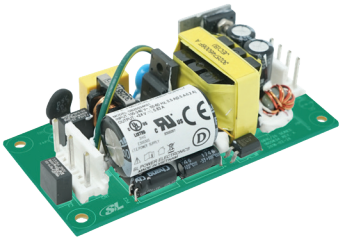
IEC 60601-1 Safety Certified

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 	Dekstop	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
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
GE150 	Desktop	150	1	12, 15, 18, 24, 48	72x165x37	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
SLB125 	Open Frame	85	125	1	12V, 15V, 24V, 48V	2 x 4 x 1.2	I, II	B, A
SLB300 	Open Frame	200	300	1	12V, 15V, 24V, 48V	3 x 5 x 1.4	I, II	
SLB350 NEW 	Open Frame	200	350	1	12V, 24V, 48V, 56V	3 x 5 x 1.5	I, II	B, B

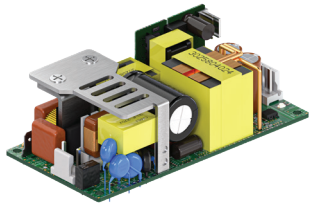
SL Power AC-DC Internal

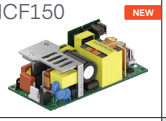
IEC 60601-1 Safety Certified

Standard AC-DC								
Product Series	Descriptions	Output Power Watts		Outputs	Available Output Voltages	Dimensions, inch	Protection Class	EMI Class
		Free Air	Forced Air					
SLB1000 NEW 	Enclosed w/ fan	800	1000	1	12V, 24V, 48V	2.4 x 5.2 x 10	I, II	B, B
NGB150 	Open Frame	120	150	1	12V, 15V, 19V, 24V, 48V	2 x 4 x 1.4	I, II	B, B
NGB250 	Open Frame	180	250	1	12V, 15V, 24V, 48V	2 x 4 x 1.4	I, II	B, B
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
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
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					
NCF150 NEW 	Open Frame	120	150	1	12V, 15V, 19V, 24V, 36V, 48V	4.0 x 2.0 x 1.26	I, II	B, B
NCF250 NEW 	Open Frame	145, 155, 175	230, 250	1	12V, 15V, 24V, 48V	2.4 x 5.0 x 1.6	I, II	B, B
NCF425 NEW 	Open Frame	270	425	1	12V, 24V, 48V	3.5 x 6 x 1.5	I, II	B, B
NCF660 NEW 	Open Frame	440	660	1	12V, 15V, 24V, 48V	4 x 7 x 1.6	I, II	B, B
LPP200 NEW 	Open Frame	120	200	1	12V, 24V, 48V	2 x 4 x 0.75	I, II	B, B
LPP300 NEW 	Open Frame	120, 170	270, 300	1	12V, 24V, 48V	3 x 5 x 0.75	I, II	B, B

Type BF Power Supplies

Open Frame

NGB150
NGB250
NGB425
NGB660
NGB800
GB10
GB20
GB30
GB40
SLB65
SLB125
SLB300
MB65
LPS360
CPS250-M

Enclosed

NGB1200
Xsolo
SLB1000
CS1000

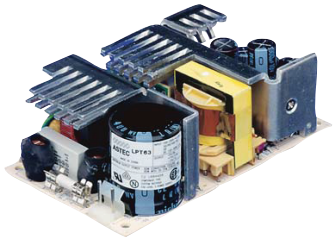
Adapters

SLE06
SLE12
SLE18
SLE24
SLE33
SLE36N, SLE36X
SLE48 (N type input version, C8 connector)
SLE60
SLE65 (N type input version, C8 connector)
SLE90S (N type input version, C8 connector)
ME (MExxBxxx versions are not BF)


Advanced Energy
SL POWER
NCF250

Artesyn AC-DC Power Supplies

IEC 60601-1 Safety Certified

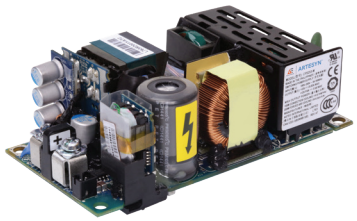


Standard AC-DC[1,2]								
Product Series	Descriptions	Output Power Watts		Outputs	Available Output Voltages	Dimensions	Protection Class	EMI Class
		Free Air	Forced Air					
DA10-M[3] 	External Adapter (wall mount)	10	10	1	5 V	2.36 x 1.10 x 2.40 in	II	B
NPS20-M 	Open-frame	25	40	1	5 V, 12 V, 15 V, 24 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

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					
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

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

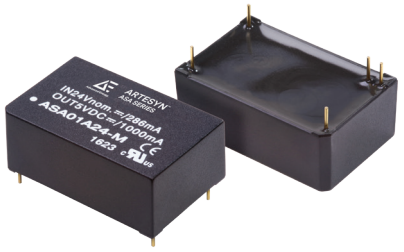
Standard AC-DC[1,2]

Product Series	Descriptions	Output Power Watts		Outputs	Available Output Voltages	Dimensions	Protection Class	EMI Class
		Free Air	Forced Air					
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
NeoPower NP05 NEW 	Configurable	1200	2400	1 to 16	5V, 12V, 15V, 24V, 48V	2.4 x 5.2 x 10 in	I	B, B
NeoPower NP08 NEW 	Configurable	2000	4000	1 to 16	5V, 12V, 15V, 24V, 48V	2.4 x 5.2 x 10 in	I, II	B, B

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 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
5 W	Enclosed						
	9 to 18 V	5 V @ 1 A		1.25 x 0.80 x 0.41 in	4200 VACrms	75%	ASA01A12-M
	18 to 36 V	5 V @ 1 A		1.25 x 0.80 x 0.41 in	4200 VACrms	77%	ASA01A24-M
	36 to 75 V	5 V @ 1 A		1.25 x 0.80 x 0.41 in	4200 VACrms	77%	ASA01A48-M
6 W	Enclosed						
	9 to 18 V	12 V @ 0.5 A		1.25 x 0.80 x 0.41 in	4200 VACrms	78%	ASA01B12-M
	9 to 18 V	12 V @ 0.25 A		1.25 x 0.80 x 0.41 in	4200 VACrms	78%	ASA01BB12-M
	9 to 18 V	15 V @ 0.2 A		1.25 x 0.80 x 0.41 in	4200 VACrms	78%	ASA01CC12-M
	18 to 36 V	12 V @ 0.5 A		1.25 x 0.80 x 0.41 in	4200 VACrms	80%	ASA01B24-M
	18 to 36 V	12 V @ 0.25 A		1.25 x 0.80 x 0.41 in	4200 VACrms	80%	ASA01BB24-M
	18 to 36 V	15 V @ 0.2 A		1.25 x 0.80 x 0.41 in	4200 VACrms	80%	ASA01CC24-M
	36 to 75 V	12 V @ 0.5 A		1.25 x 0.80 x 0.41 in	4200 VACrms	80%	ASA01B48-M
	36 to 75 V	12 V @ 0.25 A		1.25 x 0.80 x 0.41 in	4200 VACrms	80%	ASA01BB48-M
	36 to 75 V	15 V @ 0.2 A		1.25 x 0.80 x 0.41 in	4200 VACrms	80%	ASA01CC48-M
8 W	9 to 18 V	5 V @ 1.6 A		2.00 x 1.00 x 0.40 in	4200 VACrms	76%	AEE01A12-M
15 W	9 to 18 V	5 V @ 3 A		2.00 x 1.00 x 0.47 in	4200 VACrms	85%	AEE03A12-M
	9 to 18 V	12 V @ 1.25 A		2.00 x 1.00 x 0.47 in	4200 VACrms	89%	AEE01B12-M
	9 to 18 V	15 V @ 1 A		2.00 x 1.00 x 0.47 in	4200 VACrms	88%	AEE01C12-M
	9 to 18 V	24 V @ 0.625 A		2.00 x 1.00 x 0.47 in	4200 VACrms	88%	AEE01H12-M
	9 to 18 V	12 V @ 0.625 A	-12 V @ 0.625 A	2.00 x 1.00 x 0.47 in	4200 VACrms	88%	AEE01BB12-M
	9 to 18 V	15 V @ 0.5 A	-15 V @ 0.5 A	2.00 x 1.00 x 0.47 in	4200 VACrms	89%	AEE01CC12-M
	18 to 36 V	5 V @ 3 A		2.00 x 1.00 x 0.47 in	4200 VACrms	87%	AEE03A24-M
	18 to 36 V	12 V @ 1.25 A		2.00 x 1.00 x 0.47 in	4200 VACrms	89%	AEE01B24-M
	18 to 36 V	15 V @ 1 A		2.00 x 1.00 x 0.47 in	4200 VACrms	88%	AEE01C24-M
	18 to 36 V	24 V @ 0.625 A		2.00 x 1.00 x 0.47 in	4200 VACrms	90%	AEE01H24-M
	18 to 36 V	12 V @ 0.625 A	-12 V @ 0.625 A	2.00 x 1.00 x 0.47 in	4200 VACrms	90%	AEE01BB24-M
	18 to 36 V	15 V @ 0.5 A	-15 V @ 0.5 A	2.00 x 1.00 x 0.47 in	4200 VACrms	89%	AEE01CC24-M
	36 to 75 V	5 V @ 3 A		2.00 x 1.00 x 0.47 in	4200 VACrms	88%	AEE03A48-M
	36 to 75 V	12 V @ 1.25 A		2.00 x 1.00 x 0.47 in	4200 VACrms	88%	AEE01B48-M
	36 to 75 V	15 V @ 1 A		2.00 x 1.00 x 0.47 in	4200 VACrms	87%	AEE01C48-M
	36 to 75 V	24 V @ 0.625 A		2.00 x 1.00 x 0.47 in	4200 VACrms	88%	AEE01H48-M
	36 to 75 V	12 V @ 0.625 A	-12 V @ 0.625 A	2.00 x 1.00 x 0.47 in	4200 VACrms	88%	AEE01BB48-M
	36 to 75 V	15 V @ 0.5 A	-15 V @ 0.5 A	2.00 x 1.00 x 0.47 in	4200 VACrms	88%	AEE01CC48-M

Artesyn DC-DC Power Supplies

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

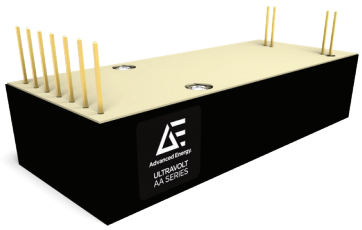
Standard DC-DC							
	Input Voltage	Output 1 Voltage	Output 2 Voltage	Dimensions	I/O Isolation	Efficiency	Model Number
20 W	9 to 18 V	5 V @ 4 A		2.00 x 1.00 x 0.47 in	4200 VACrms	85%	AEE04A12-M
	9 to 18 V	12 V @ 1.67 A		2.00 x 1.00 x 0.47 in	4200 VACrms	89%	AEE02B12-M
	9 to 18 V	15 V @ 1.33 A		2.00 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)

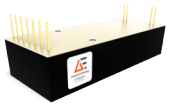
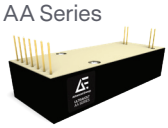
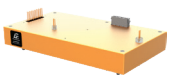
Wide-range AC input, 390 VDC output

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

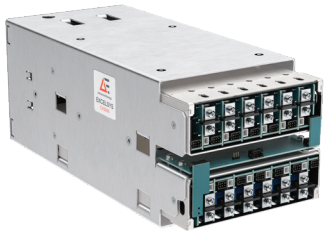
UltraVolt Medical Power Supplies



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	10 ppm	1LE24-P4
						20 - 30 kV: 7.28 x 3.94 x 1.50 in		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 NEW 	Ultra-miniature DC to DC converters supply up to 600VDC at 0.5W or 1.25 W	0.5 and 1.25 W	Single or Dual	5 or 12	Up to 600V (single) or +/-300V (dual)	0.5 x 0.5 x 0.5 in	<1%	AEQ5-300FL0.5 and AEQ5-100FL1.25

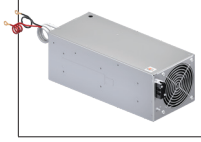
Excelsys Medical Power Supplies

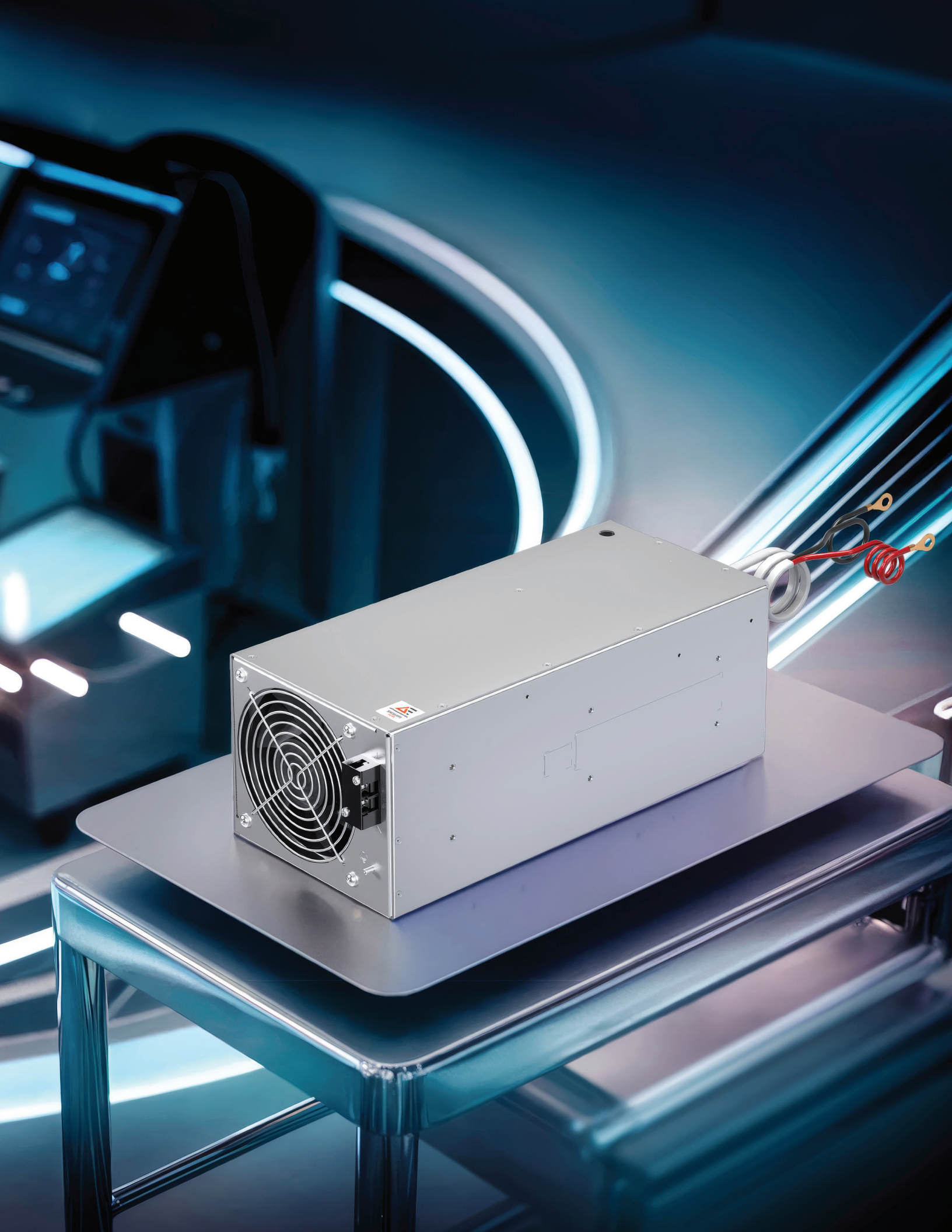


Standard AC-DC									
Product Series	**Descriptions**	**Output Power Watts**	**Free Air**	**Forced Air**	**Outputs**	**Available Output Voltages**	**Dimensions**	**Protection Class**	**EMI Class**
CX600/CX1000 	Fanless 600 W/ 1000 W, Intelligent, Modular Power Supply Platform	CX600: 600 CX1000: 1000	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]

1. Consult AE applications for system level compliance

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
FC1500 	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	348 mm x 145 mm x 106 mm	Class I	A
FC2500 NEW 	High voltage 2.5kJ capacitor charger and low voltage	Charger: 2500W AC-DC: 800W	-	Up to 3300 W (2500W + 800W)	Up to 10	0 - 1000 VDC	348 mm x 145 mm x 106 mm	Class I	A
FC4000 NEW 	High voltage 4kJ capacitor charger and low voltage	Charger: 4000W AC-DC: 800W	-	Up to 4800 W (4000W + 800W)	Up to 10	0 - 1000 VDC	348 mm x 153 mm x 132 mm	Class I	A



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

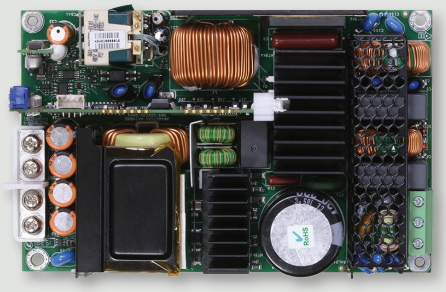
Define and specify the power requirements as early as possible in the design process

02

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

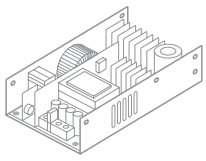


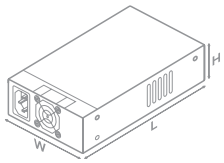
Electrical Requirements

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

Mechanical Requirements

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





Compliance/Environmental

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

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

Advanced Energy

For international contact information, visit advancedenergy.com.

powersales@aei.com
productsupport.ep@aei.com
+1 888 412 7832

EN-Healthcare-Brochure-225-04 07.26