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Anveco Toroidal Solutions

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Acme Electric's Amveco brand specializes in the design and construction of class-leading toroid magnetics, for the most challenging applications, including the medical and communications industry.

Small Size

Most toroids are smaller than their E-I transformer counter- parts. They are particularly well suited where low height is a consideration.

Low Stray Magnetic Field

Toroids have no air gaps since the primaries and secondaries are wound uniformly around the entire core. As a result, toroids emit very low radiated magnetic fields. This makes the toroid ideal for applications involving high sensitivity circuitry.

Low Mechanical Hum

The core of a toroid is formed from a single strip of grain- oriented electrical grade silicon steel tightly wound in the form of a clock spring with the ends spot-welded in place. The copper wire is wound over polyester film, forming a silent, stable unit without the use of environmentally unfriendly glues or varnishes.

Low Weight

Toroids weigh up to 50% less, than conventional laminated transformers thanks to their higher efficiency levels. Low weight simplifies end product design by reducing mounting hardware and supporting enclosure requirements.

Low No-Load Losses

Compared to conventional E-I transformers, toroids exhibit extremely low no-load losses. In applications where a circuit is in a "stand-by" mode for long periods, the potential cost reduction for power can be significant, sometimes 80-90%.

High Efficiency

Due to its unique construction, toroids are typically between 15 and 30% more efficient than the conventional type.

Low Operating Temperature

Since most of the losses in a toroid are copper wire, the toroid cools off quicker than the conventional E-I type with more iron. At half the load, the toroid's temperature rise is only about 30% of what it is at full load.

Easy To Mount

A single-center screw easily and quickly mounts the toroid, avoiding costly mechanical design and practical problems associated with conventional E-I-laminated transformers.

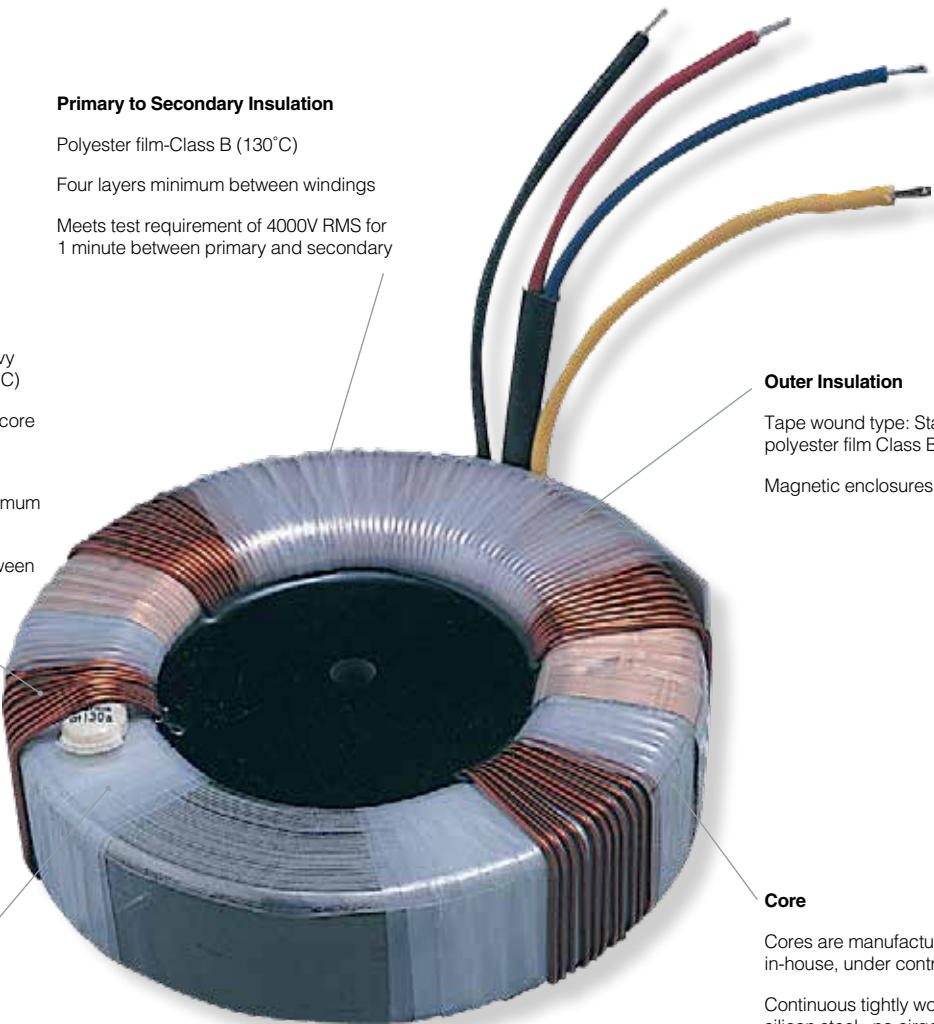
Safety Standards

Acme Electric proudly holds Certificates from both North American and International Safety Standard Testing Laboratories.

- UL 506 General Purpose Transformers (File # E 122978)
- UL 1950 Information Technology Equipment, Electrical Business Equipment (File # E 138299)
- UL60601-1 Medical and Dental Equipment (File # E 138299)
- UL 1446, Class B, Class F and Class H Insulation Systems (File # E 123069)
- CSA 22.2 No. 66-1988 Specialty Transformers (File # LR 86989)
- CSA 22.2 No. 601.1 M90 Medical Standard for Canada (File # E 138299)
- IEC 601.1 (Medical Standard for International Installations) (File # E 152649)

OVERALL COMPARISON OF 250VA E-I CORE ISOLATION TRANSFORMER VS. 250 VA TOROIDAL ISOLATION TRANSFORMER

Feature	250VA E-I Core Transformer	250VA Toroid Transformer
Height	4.7" (119mm)	2.2" (56mm)
Width	3.9" (99mm)	4.5" (114mm)
Depth	4.3" (109mm)	4.5" (114mm)
Volume	78.8 sqs.in. (508.4cm ²)	35.0 sq.in. (225.8cm ²)
Weight	10 lbs. (4.5 kg)	5 lbs. (2.3 kg)
Mounting Requirements	Four corner bolts	Single bolt through center
No Load Losses	10.0 W	1.5 W
Continuity of Magnetic Path	50% of grain perpendicular	100% parallel grain orientation
Air Gaps	Approximately 180 (60 laminations x 3)	None
Magnetic Properties of Core	Affected by clamping, welding, banding, etc.	Optimized prior to winding and remains stable
Coupling Factor	Limited by bobbin width and layers of windings	Maximized by even winding distribution and close proximity to core



Primary to Secondary Insulation
 Polyester film-Class B (130°C)
 Four layers minimum between windings
 Meets test requirement of 4000V RMS for 1 minute between primary and secondary

Windings
 Base coat of Polyester. Heavy topcoat of amide imide (200°C)
 Wound uniformly over entire core
 Better heat dissipation
 Windings configured for minimum flux leakage
 Low voltage maintained between adjacent turns

Outer Insulation
 Tape wound type: Standard two layers polyester film Class B (130°C)
 Magnetic enclosures optional

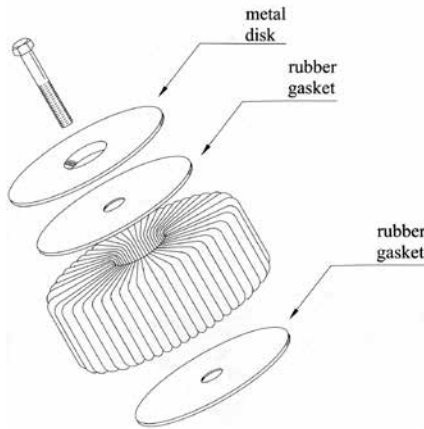
Core
 Cores are manufactured and annealed in-house, under controlled conditions
 Continuous tightly wound grain oriented silicon steel...no airgaps, no mechanical noise
 Lathed radial corners... compact design, most efficient use of materials
 No core caps necessary

Core Insulation
 All cores: 100% surface coverage of four layers of 2 mil polyester film Class B (130°C)
 Protects, insulates and cushions the core from windings and reduces vibration

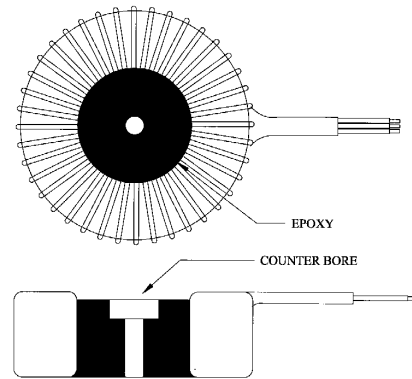
DIMENSIONS OF METAL MOUNTING DISK AND INSULATION PAD

Power Range (VA)	OD inch (mm)	Hole inch (mm)	Thickness inch (mm)	Recommended Hardware
20	1.7 (45)	0.18 (4.5)	.04 (1)	#8
40-60	2.4 (60)	0.20 (5.2)	.04 (1)	#10
100-150	2.8 (70)	0.26 (6.6)	.04 (1)	1/4"
200-350	3.5 (90)	0.26 (6.6)	0.05 (1.3)	1/4"
425-800	4.4 (110)	0.26 (6.6)	0.06 (1.5)	1/4"
800-120	5.2 (130)	0.33 (8.4)	0.07 (1.7)	5/16"
1200-1500	5.6 (145)	0.41 (10.3)	0.07 (1.7)	3/8"

Metal disk with Insulating Pads
Up to 1500VA



Potted Centerhole
All sizes

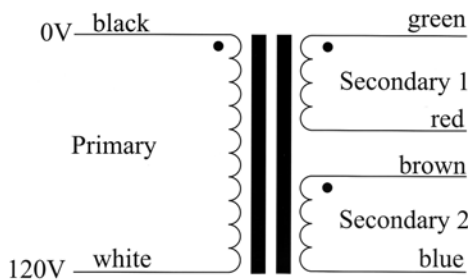


TOROIDAL TRANSFORMERS – North American Voltage 120V/60Hz

Our standard lines of toroidal transformers are designed for step up or step down general purpose applications in North American and international markets.

Features

- 120V, 60Hz
- Many, popular secondary voltage options
- 18 to 1000VA ratings available
- Listed as recognized/certified components (UL and CSA)
- Class A (105°C)
- Disk mounting hardware included
- 10" color-coded self leads
- Wiring configurations with color codes



Winding Configurations With Color Codes

Figure 1
Single 120V/60Hz Primary w/ Dual Secondaries



Figure 2
Single 120V/60Hz Primary w/ Single Secondary



PRIMARY VOLTAGE — 120V 60Hz

Part Number	Nominal Power (VA)	Secondary Voltage (Volts)	Secondary Current (Amps)	Core Loss (Watts)	Copper Loss (Watts)	OD x H Inches (mm)	Weight Lbs. (kg)	Mounting Hardware
AA50182009	18	2 x 9	1.0	3.0	0.20	2.5 x 1.3 (64 x 33)	0.7 (0.3)	#8
AA50182012		2 x 12	0.7	3.0	0.20			
AA50182015		2 x 15	0.6	3.0	0.20			
AA50182018		2 x 18	0.5	3.0	0.20			
AA50362009	36	2 x 9	2.0	5.8	0.25	2.9 x 1.5 (74 x 38)	1.1 (0.5)	#10
AA50362012		2 x 12	1.5	5.8	0.25			
AA50362015		2 x 15	1.2	5.8	0.25			
AA50362018		2 x 18	1.0	5.8	0.25			
AA50602009	60	2 x 9	3.3	8.6	0.45	3.3 x 1.4 (84 x 36)	1.6 (0.7)	#10
AA50602012		2 x 12	2.5	8.6	0.45			
AA50602015		2 x 15	2.0	8.6	0.45			
AA50602018		2 x 18	1.7	8.6	0.45			
AA50902012	90	2 x 12	3.8	12.0	0.60	3.7 x 1.5 (94 x 38)	1.9 (0.9)	#10
AA50902015		2 x 15	3.0	12.0	0.60			
AA50902018		2 x 18	2.5	12.0	0.60			
AA50902022		2 x 22	2.0	12.0	0.60			
AA51152012	115	2 x 12	4.8	16.0	0.90	3.9 x 1.5 (99 x 38)	2.2 (1)	1/4"
AA51152015		2 x 15	3.8	16.0	0.90			
AA51152018		2 x 18	3.2	16.0	0.90			
AA51152022		2 x 22	2.6	16.0	0.90			
AA51702012	170	2 x 12	7.1	19.0	1.20	3.9 x 1.9 (99 x 48)	3.1 (1.4)	1/4"
AA51702015		2 x 15	5.7	19.0	1.20			
AA51702018		2 x 18	4.7	19.0	1.20			
AA51702022		2 x 22	3.9	19.0	1.20			
AA52201220	220	220	1.0	20.0	1.40	4.5 x 1.8 (114 x 46)	4 (1.8)	1/4"
AA52202018		2 x 18	6.1	20.0	1.40			
AA52202022		2 x 22	5.0	20.0	1.40			
AA52202024		2 x 24	4.6	20.0	1.40			
AA53601220	360	220	1.6	22.0	1.70	4.5 x 2.4 (114 x 61)	5.4 (2.5)	1/4"
AA53602024		2 x 24	7.5	22.0	1.70			
AA53602030		2 x 30	6.0	22.0	1.70			
AA53602033		2 x 33	5.5	22.0	1.70			
AA53602038	2 x 38	4.7	22.0	1.70				
AA54501220	450	220	2.1	27.0	2.00	5.4 x 2 (137 x 51)	6.5 (3)	1/4"
AA54502030		2 x 30	7.5	27.0	2.00			
AA54502033		2 x 33	6.8	27.0	2.00			
AA54502038		2 x 38	5.9	27.0	2.00			


PRIMARY VOLTAGE — 120V 60Hz (CONT.)

Part Number	Nominal Power (VA)	Secondary Voltage (Volts)	Secondary Current (Amps)	Core Loss (Watts)	Copper Loss (Watts)	OD x H Inches (mm)	Weight Lbs. (kg)	Mounting Hardware
AA55501220	550	220	2.5	31.0	2.40	5.4 x 2.6 (137 x 66)	8.5 (3.7)	1/4"
AA55502030		2 x 30	9.2	31.0	2.40			
AA55502033		2 x 33	8.3	31.0	2.40			
AA55502038		2 x 38	7.2	31.0	2.40			
AA56501120	650	120	5.4	36.0	3.10	5.4 x 2.8 (137 x 71)	9.5 (4.3)	5/16"
AA56502024		2 x 24	13.5	36.0	3.10			
AA56502030		2 x 30	10.8	36.0	3.10			
AA56502042		2 x 42	7.7	36.0	3.10			
AA57901120	790	120	6.6	45.0	3.80	5.8 x 2.8 (147 x 71)	11.5 (5.2)	5/16"
AA57902024		2 x 24	16.5	45.0	3.80			
AA57902030		2 x 30	13.2	45.0	3.80			
AA57902042		2 x 42	9.4	45.0	3.80			
AA50001120	1000	120	8.3	45.0	3.80	6.5 x 2.6 (165 x 66)	12.4 (5.6)	5/16"
AA50002024		2 x 24	20.8	45.0	3.80			
AA50002030		2 x 30	16.7	45.0	3.80			
AA50002042		2 x 42	11.9	45.0	3.80			

Note: Electrical measurements @ 20°C ambient temperature. All data subject to change without prior notice.

TOROIDAL TRANSFORMER – INTERNATIONAL VOLTAGE 2x117V, 50/60Hz
Features

- 2 x 117V/50-60Hz primaries
- Many popular secondary voltage options
- 15 to 990VA ratings available
- Listed as recognized/certified components (UL and CSA)
- Class A (105°C)
- Disk mounting hardware included
- 10" color coded self leads
- Wiring configurations with color codes

PRIMARY VOLTAGE — 2 X 117V 50/60 Hz

Part Number	Nominal Power (VA)	Secondary Voltage (Volts)	Secondary Current (Amps)	Core Loss (Watts)	Copper Loss (Watts)	OD x H Inches (mm)	Weight Lbs. (kg)	Mounting Hardware
AA50152006	15	2 x 6	1.25	3.0	0.20	2.5 x 1.3 (64 x 33)	0.7 (0.3)	#8
AA50152009		2 x 9	0.83	3.0	0.20			
AA50152012		2 x 12	0.62	3.0	0.20			
AA50152015		2 x 15	0.5	3.0	0.20			
AA50152018		2 x 18	0.42	3.0	0.20			
AA50152022		2 x 22	0.3	3.0	0.20			
AA50302006	30	2 x 6	2.5	5.8	0.25	3.0 x 1.5 (76 x 38)	1.1 (0.5)	#10
AA50302009		2 x 9	1.67	5.8	0.25			
AA50302012		2 x 12	1.25	5.8	0.25			
AA50302015		2 x 15	1	5.8	0.25			
AA50302018		2 x 18	0.88	5.8	0.25			
AA50302022		2 x 22	0.68	5.8	0.25			

**PRIMARY VOLTAGE — 2 X 117V 50/60 Hz (CONT.)**

Part Number	Nominal Power (VA)	Secondary Voltage (Volts)	Secondary Current (Amps)	Core Loss (Watts)	Copper Loss (Watts)	OD x H Inches (mm)	Weight Lbs. (kg)	Mounting Hardware
AA50502006	50	2 x 6	4.2	8.6	0.45	3.2 x 1.4 (81 x 36)	1.6 (0.7)	#10
AA50502009		2 x 9	2.8	8.6	0.45			
AA50502012		2 x 12	2.1	8.6	0.45			
AA50502015		2 x 15	1.7	8.6	0.45			
AA50502018		2 x 18	1.4	8.6	0.45			
AA50502022		2 x 22	1.1	8.6	0.45			
AA50502024		2 x 24	1	8.6	0.45			
AA50952009	95	2 x 9	2.8	16.0	0.90	3.9 x 1.5 (99 x 38)	2.2 (1)	1/4"
AA50952012		2 x 12	2.1	16.0	0.90			
AA50952015		2 x 15	3.2	16.0	0.90			
AA50952018		2 x 18	2.6	16.0	0.90			
AA50952022		2 x 22	2.2	16.0	0.90			
AA50952024		2 x 24	2	16.0	0.90			
AA50952028		2 x 28	1.7	16.0	0.90			
AA50952030	2 x 30	1.6	16.0	0.90				
AA51402012	140	2 x 12	5.8	19.0	1.20	3.9 x 1.9 (99 x 48)	3 (1.4)	1/4"
AA51402015		2 x 15	4.7	19.0	1.20			
AA51402018		2 x 18	3.9	19.0	1.20			
AA51402022		2 x 22	3.2	19.0	1.20			
AA51402024		2 x 24	2.9	19.0	1.20			
AA51402028		2 x 28	2.5	19.0	1.20			
AA51402030		2 x 30	2.3	19.0	1.20			
AA51402117	2 x 117	0.6	19.0	1.20				
AA51852012	185	2 x 12	7.7	20.0	1.40	4.5 x 1.9 (114 x 48)	4 (1.8)	1/4"
AA51852015		2 x 15	6.16	20.0	1.40			
AA51852018		2 x 18	5.1	20.0	1.40			
AA51852022		2 x 22	4.2	20.0	1.40			
AA51852024		2 x 24	3.9	20.0	1.40			
AA51852028		2 x 28	3.3	20.0	1.40			
AA51852030		2 x 30	3.1	20.0	1.40			
AA51852117	2 x 117	0.8	20.0	1.40				
AA52402015	240	2 x 15	8	22.0	1.70	4.5 x 2.1 (114 x 53)	4.8 (2.2)	1/4"
AA52402018		2 x 18	6.7	22.0	1.70			
AA52402024		2 x 24	5	22.0	1.70			
AA52402030		2 x 30	4	22.0	1.70			
AA52402038		2 x 38	3.2	22.0	1.70			
AA52402117		2 x 117	1	22.0	1.70			



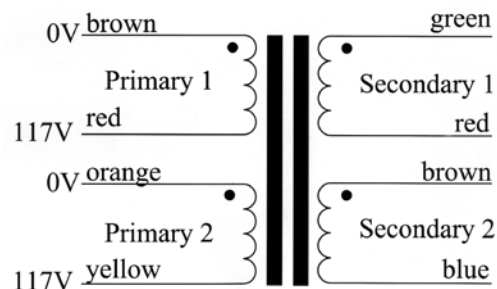
PRIMARY VOLTAGE — 2 X 117V 50/60 Hz (CONT.)

Part Number	Nominal Power (VA)	Secondary Voltage (Volts)	Secondary Current (Amps)	Core Loss (Watts)	Copper Loss (Watts)	OD x H Inches (mm)	Weight Lbs. (kg)	Mounting Hardware
AA53002015		2 x 15	10	22.0	1.70			
AA53002018		2 x 18	8.3	22.0	1.70			
AA53002024	300	2 x 24	6.2	22.0	1.70	4.6 x 2.6 (117 x 66)	5.7 (2.6)	1/4"
AA53002030		2 x 30	5	22.0	1.70			
AA53002038		2 x 38	5	22.0	1.70			
AA53002117		2 x 117	1.3	22.0	1.70			
AA53752018		2 x 18	10.4	27.0	2.00			
AA53752024	375	2 x 24	7.8	27.0	2.00	5.4 x 2.0 (137 x 51)	6.7 (3)	1/4"
AA53752030		2 x 30	6.3	27.0	2.00			
AA53752038		2 x 38	4.9	27.0	2.00			
AA53752117		2 x 117	4.9	27.0	2.00			
AA54602024		2 x 24	9.6	31.0	2.40			
AA54602030	460	2 x 30	7.7	31.0	2.40	5.4 x 2.6 (137 x 66)	7.9 (3.6)	1/4"
AA54602038		2 x 38	6	31.0	2.40			
AA54602117		2 x 117	2	31.0	2.40			
AA56252024	625	2 x 24	13	36.0	3.10	5.5 x 3.2 (140 x 81)	9.5 (4.3)	1/4"
AA56252030		2 x 30	10.4	36.0	3.10			
AA56252033		2 x 33	9.5	36.0	3.10			
AA56252038		2 x 38	8.2	36.0	3.10			
AA56252117		2 x 117	2.7	36.0	3.10			
AA58002024	800	2 x 24	16.7	45.0	3.80	6.4 x 2.7 (163 x 69)	12.3 (5.6)	5/16"
AA58002030		2 x 30	13.3	45.0	3.80			
AA58002038		2 x 38	10.5	45.0	3.80			
AA58002048		2 x 48	8.2	45.0	3.80			
AA58002117		2 x 117	3.4	45.0	3.80			
AA59902024	990	2 x 24	20.6	45.0	3.80	6.5 x 3.0 (165 x 76)	15.2 (6.9)	5/16"
AA59902042		2 x 42	11.8	45.0	3.80			
AA59902055		2 x 55	9	45.0	3.80			
AA59902117		2 x 117	4.2	45.0	3.80			

Note: Electrical measurements @ 20°C ambient temperature. All data subject to change without prior notice.

Winding Configurations With Color Codes

Dual 117V 50/60Hz Primaries w/ Dual Secondaries
Multiple primaries must be connected in series or parallel.



MEDICAL GRADE HIGH ISOLATION TOROIDAL TRANSFORMERS

Medical grade isolation transformers are installed in numerous medical power applications due to the advantages toroids have compared to other transformer constructions. The designs and constructions of medical transformers are greatly impacted by rigorous rules, guidelines, and laws that dictate specific requirements such as spacing, creepage distances, and leakage current maximums.

Quad Primaries: 100V, 120V, 220V, 240V - 50/60Hz

Part Number	Nominal (VA)	Secondary Current at 120V (Amps)	Secondary Current at 240V (Amps)	OD x H Inches (mm)	Weight Lbs. (kg)
MT0100DS	100 VA	0.83	0.42	4.0 x 2.0 (102 x 51)	2.7 (1.2)
MT0100SS	100 VA	0.83		4.0 x 2.0 (102 x 51)	2.7 (1.2)
MT0230DS	230 VA	1.92	0.96	4.6 x 2.4 (117 x 61)	5.2 (2.4)
MT0230SS	230 VA	1.92		4.6 x 2.4 (117 x 61)	5.2 (2.4)
MT0400DS	400 VA	3.33	1.67	5.5 x 2.5 (140 x 64)	8 (3.6)
MT0400SS	400 VA	3.33		5.5 x 2.5 (140 x 64)	8 (3.6)
MT0600DS	600 VA	5	2.5	6.2 x 3.1 (157 x 79)	13 (5.9)
MT0600SS	600 VA	5		6.2 x 3.1 (157 x 79)	13 (5.9)
MT0750DS	750 VA	6.25	3.12	6.6 x 3.0 (168 x 79)	14 (6.4)
MT0750SS	750 VA	6.25		6.6 x 3.0 (168 x 79)	14 (6.4)
MT1000DS	1000 VA	8.33	4.16	6.9 x 3.5 (175 x 89)	20 (9.1)
MT1500DS	1500 VA	12.5	6.25	8.2 x 4.0 (208 x 102)	28 (12.7)
MT2000DS	2000 VA	16.6	8.33	9.1 x 4.4 (231 x 112)	35 (15.9)
MT2500DS	2500 VA	20.8	10.4	9.4 x 4.5 (239 x 114)	39 (17.7)
MT3000DS	3000 VA	25	12.5	10.0 x 4.3 (254 x 109)	47 (21.3)
MT3750DS	3750 VA	31.2	15.6	10.5 x 4.9 (267 x 124)	65 (29.5)
MT5000DS	5000 VA	41.6	20.8	11.6 x 5.4 (295 x 137)	78 (35.4)
MT6250DS	6250 VA	52	26	12.0 x 5.6 (305 x 143)	90 (40.8)
MT7500DS	7500 VA	62.5	31.2	12.0 x 5.5 (305 x 140)	100 (45.4)
MT8750DS	8750 VA	72.9	36.4	12.5 x 5.5 (318 x 140)	110 (49.9)
MT10000DS	10000 VA	83.3	41.6	13.0 x 5.2 (330 x 132)	120 (54.4)

Note: Electrical measurements @ 20°C ambient temperature. All data subject to change without prior notice.

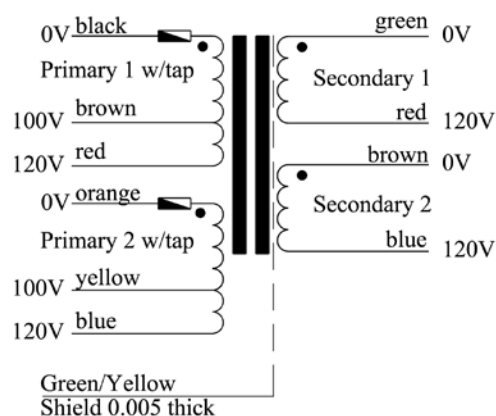
(suffix) SS = (Single Secondary) Secondary 1 only

(suffix) DS = (Dual Secondary) Secondary 1 & 2

Units rated below 1000VA come with metal disk and insulating pads.

Units rated 1000VA and larger are center potted.

Part numbers MT100 through MT5000 carry full TUV BAUARTMARK.



LOW PROFILE PC MOUNT TRANSFORMERS

Our 70000-series PC Mount toroidal step-down transformers offer the same features as our non-encapsulated toroidal power transformers, namely, very low EMR (magnetic stray fields), quiet operation, low temperature rise, low profile, low no-load current and very low no-load losses.

The cores are produced from a continuous strip of high grade silicon steel, and the windings are placed concentrically around the core. This is the ideal magnetic path, lacking air gaps or discontinuities thereby optimizing the use of magnetic flux for power transformation and significantly reducing idling currents when the load is removed.

Additionally, the transformers are designed for PCB mounting and can be secured prior to the soldering process through the use of a central screw receptacle that will accommodate either M4/M5 metric machine screws, or self-tapping types.

Benefits

- Low profile
- Low magnetic field radiation
- Acoustic noise virtually eliminated
- Small size
- High efficiency
- Low leakage losses
- High isolation (4000VAC primary to secondary)

Features

- Safety standard certifications (UL 506, UL 1950, UL File E122978, E138299)
- VDE 0805, IEC 950, EN 60950
- UL recognized for insulation Class A (105C). Meets all requirements of Class E(125°C)
- UL and VDE certifications to +40°C (1.6VA - 25VA)
- Hipot testing at 4000V between primary and secondary. (VDE0550)
- Maximum ambient temperature of +60°C for 1.6VA-25VA, +40°C for 35VA and 50VA models

PRIMARY VOLTAGE — 115V or 230V at 50/60 Hz

Part Number	Power (VA)	Secondary Voltage (V)	Secondary Current (mA)	No Load Voltage (V)	No Load Current (mA)	Reg %	Δt (°C)	Eff %	Length (Inches) (mm.)	Width (Inches) (mm.)	Height (Inches) (mm.)	Weight Lbs. (kg)	Pin Layout			
													X In. (mm.)	Y In. (mm.)	Pin Size In. (mm.)	
70000K		2 x 7	114	2 x 8.9												
70001K		2 x 9	89	2 x 11.6												
70002K	1.6	2 x 12	67	2 x 15.4	1	29	10	77	1.56 (39.6)	1.56 (39.6)	0.73 (18.5)	0.18 (82)	1.4 (35.56)	1.4 (35.56)	0.04 x 0.02 (1.0 x 0.5)	
70003K		2 x 15	53	2 x 19.3												
70004K		2 x 18	44	2 x 23.4												
70005K		2 x 22	36	2 x 28.2												
70010K		2 x 7	229	2 x 10.2												
70011K		2 x 9	178	2 x 13.0												
70012K	3.2	2 x 12	133	2 x 17.3	1.5	43	20	70	1.76 (44.7)	1.76 (44.7)	0.77 (19.5)	0.24 (110)	40.64	40.64	0.04 x 0.02 (1.0 x 0.5)	
70013K		2 x 15	107	2 x 21.4												
70014K		2 x 18	89	2 x 25.7												
70015K		2 x 22	73	2 x 31.3												

PRIMARY VOLTAGE — 115V or 230V at 50/60 Hz (CONT.)

Part Number	Power (VA)	Secondary Voltage (V)	Secondary Current (mA)	No Load Voltage (V)	No Load Current (mA)	Reg %	Δt (°C)	Eff %	Length (inches) (mm.)	Width (inches) (mm.)	Height (inches) (mm.)	Weight Lbs. (kg)	Pin Layout		
													X In. (mm.)	Y In. (mm.)	Pin Size In. (mm.)
70020K	5	2 x 7	357	2 x 9.7	2	40	29	68	1.96 (49.7)	1.96 (49.7)	0.77 (19.5)	0.32 (144)	45.72	45.72	0.04 x 0.02 (1.0 x 0.5)
70021K		2 x 9	278	2 x 12.4											
70022K		2 x 12	208	2 x 17.0											
70023K		2 x 15	167	2 x 21.3											
70024K		2 x 18	139	2 x 25.5											
70025K		2 x 22	114	2 x 30.5											
70030K	7	2 x 7	500	2 x 9.5	3	34	25	74	1.96 (49.7)	1.96 (49.7)	0.91 (23.1)	0.38 (174)	45.72	45.72	0.04 x 0.02 (1.0 x 0.5)
70031K		2 x 9	389	2 x 12.2											
70032K		2 x 12	292	2 x 16.2											
70033K		2 x 15	233	2 x 20.3											
70034K		2 x 18	194	2 x 24.3											
70035K		2 x 22	159	2 x 29.7											
70040K	10	2 x 7	714	2 x 8.3	3	20	24	82	2.17 (55)	2.17 (55)	1.02 (26)	0.56 (252)	50.8	50.8	0.04 x 0.02 (1.0 x 0.5)
70041K		2 x 9	556	2 x 10.8											
70042K		2 x 12	417	2 x 14.4											
70043K		2 x 15	333	2 x 18.0											
70044K		2 x 18	278	2 x 21.7											
70045K		2 x 22	227	2 x 26.3											
70050K	15	2 x 7	1071	2 x 8.9	4	23	27	80	2.36 (60)	2.36 (60)	1.04 (26.3)	0.67 (304)	55.88	55.88	0.04 x 0.02 (1.0 x 0.5)
70051K		2 x 9	833	2 x 11.1											
70052K		2 x 12	625	2 x 14.8											
70053K		2 x 15	500	2 x 18.5											
70054K		2 x 18	417	2 x 22.2											
70055K		2 x 22	341	2 x 27.2											
70060K	25	2 x 7	1785	2 x 8.3	5	19	28	83	2.36 (60)	2.36 (60)	1.48 (37.5)	0.96 (435)	55.88	55.88	0.04 x 0.02 (1.0 x 0.5)
70061K		2 x 9	1377	2 x 10.7											
70062K		2 x 12	1041	2 x 14.3											
70063K		2 x 15	832	2 x 17.8											
70064K		2 x 18	694	2 x 21.4											
70065K		2 x 22	568	2 x 26.2											
70070K	35	2 x 7	2500	2 x 8.0	7	17.7	31	81	2.83 (72)	2.83 (72)	1.48 (37.5)	1.16 (525)	66.04	66.04	0.04 x 0.04 (1.0 x 1.0)
70071K		2 x 9	1944	2 x 10.6											
70072K		2 x 12	1458	2 x 14.0											
70073K		2 x 15	1167	2 x 17.6											
70074K		2 x 18	972	2 x 20.9											
70075K		2 x 22	795	2 x 25.7											

PRIMARY VOLTAGE — 115V or 230V at 50/60 Hz (CONT.)

Part Number	Power (VA)	Secondary Voltage (V)	Secondary Current (mA)	No Load Voltage (V)	No Load Current (mA)	Reg %	Δt (°C)	Eff %	Length (Inches) (mm.)	Width (Inches) (mm.)	Height (Inches) (mm.)	Weight Lbs. (kg)	Pin Layout			
													X In. (mm.)	Y In. (mm.)	Pin Size In. (mm.)	
70080K		2 x 7	3571	2 x 8.1												
70081K		2 x 9	2777	2 x 10.4												
70082K	50	2 x 12	2083	2 x 13.9	8	15.5	30	86	3.24 (82.4)	3.24 (82.4)	1.48 (37.5)	1.51 (685)	76.2	76.2	0.04 x 0.04 (1.0 x 1.0)	
70083K		2 x 15	1666	2 x 17.3												
70084K		2 x 18	1388	2 x 20.8												
70085K		2 x 22	1136	2 x 25.4												

Notes: Electrical measurements @ 20°C ambient temperature. All data subject to change without prior notice.

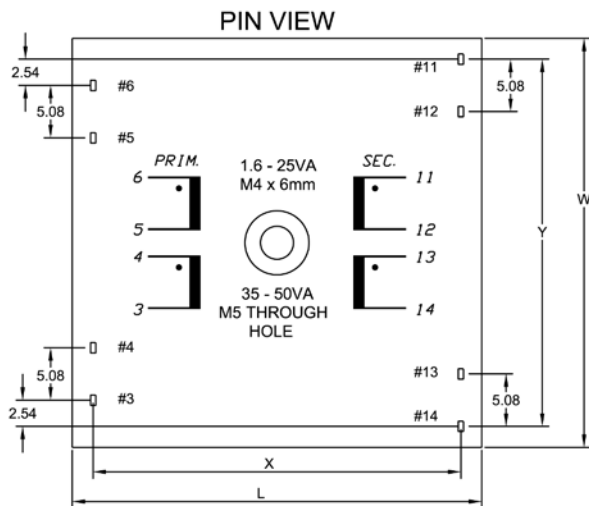
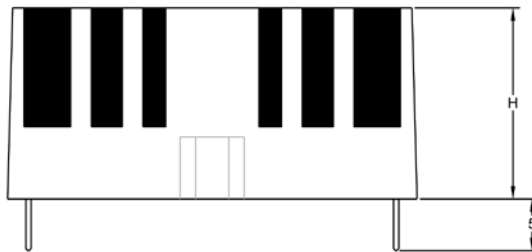
For 230V operation, connect primaries in series by connecting pins 5 & 4 together and apply 230 volts across pins 6 & 3.

For 115V operation, connect primaries in parallel by connecting pins 6 & 4 together and pins 5 & 3 together; apply 115V across pins 6 & 5.

To parallel the secondaries, connect pins 14 to 12 and 13 to 11; take the output across pins 14 & 13.

To place the secondaries in series, connect pins 13 to 12 and take the output across pins 14 & 11.

Wire Diagram and Pin Layout



LOW PROFILE MINIATURE TRANSFORMERS

The 62000-series Miniature toroidal step-down transformers offers the design engineer the same features as our larger toroidal power transformers, namely, very low EMR (magnetic stray fields), quiet operation, low temperature rise, low profile, low no-load current and very low no-load losses.

The cores are produced from a continuous strip of high grade silicon steel, and the windings are placed concentrically around the core. This is the ideal magnetic path, lacking air gaps or discontinuities thereby optimizing the use of magnetic flux for power transformation and significantly reducing idling currents when the load is removed.

Benefits

- Lower Stray field
- Higher Efficiency
- Reduced “Standby” Current
- Reduced Weight

Features

- Safety standard certifications (UL 506, UL File E122978)
- UL recognized for insulation Class A (105°C). Meets all requirements of Class E(125°C)
- UL certifications to +40°C (1.6VA - 25VA)
- Hipot testing at 4000V between primary and secondary.
- Maximum ambient temperature of +60°C
- Epoxy potted center with through hole for M4 bolt

PRIMARY VOLTAGE — 115V or 230V at 50/60 Hz

Part Number	Power (VA)	Secondary Voltage (V)	Secondary Current (mA)	No Load Voltage (V)	No Load Current (mA)	Reg %	Δt (°C)	Eff %	Outside Dimensions (Inches)(mm.)	Inside Dimensions (Inches)(mm.)	Height (Inches)(mm.)	Weight Lbs. (kg)
62000P2S02	1.6	2 x 7	114	2 x 8.94	1	29	10	77	1.48 (37.5)	0.28 (7)	0.67 (17)	0.16 (71)
62001P2S02		2 x 9	89	2 x 11.63								
62002P2S02		2 x 12	67	2 x 15.43								
62003P2S02		2 x 15	53	2 x 19.30								
62004P2S02		2 x 18	44	2 x 23.41								
62005P2S02		2 x 22	36	2 x 28.19								
62010P2S02	3.2	2 x 7	229	2 x 10.2	1.5	41	20	70	1.65 (42)	0.28 (7)	0.69 (17.5)	0.2 (89)
62011P2S02		2 x 9	178	2 x 13.0								
62012P2S02		2 x 12	133	2 x 17.3								
62013P2S02		2 x 15	107	2 x 21.4								
62014P2S02		2 x 18	89	2 x 25.7								
62015P2S02		2 x 22	73	2 x 30.5								
62020P2S02	5	2 x 7	357	2 x 9.7	2	45	29	70	1.85 (47)	0.24 (6)	0.71 (18)	0.25 (115)
62021P2S02		2 x 9	278	2 x 12.4								
62022P2S02		2 x 12	208	2 x 17.0								
62023P2S02		2 x 15	167	2 x 21.3								
62024P2S02		2 x 18	139	2 x 25.5								
62025P2S02		2 x 22	114	2 x 30.5								

PRIMARY VOLTAGE — 115V or 230V at 50/60 Hz (CONT.)

Part Number	Power (VA)	Secondary Voltage (V)	Secondary Current (mA)	No Load Voltage (V)	No Load Current (mA)	Reg %	Δt (°C)	Eff %	Outside Dimensions (Inches)(mm.)	Inside Dimensions (Inches)(mm.)	Height (Inches)(mm.)	Weight Lbs. (kg)
62030P2S02	7	2 x 7	500	2 x 9.5	3	34	25	74	1.85 (47)	0.24 (6)	0.85 (21.5)	0.32 (145)
62031P2S02		2 x 9	389	2 x 12.2								
62032P2S02		2 x 12	292	2 x 16.2								
62033P2S02		2 x 15	233	2 x 20.3								
62034P2S02		2 x 18	194	2 x 24.3								
62035P2S02		2 x 22	159	2 x 29.7								
62040P2S02	10	2 x 7	714	2 x 8.3	3	20	24	82	2.11 (53.5)	0.27 (6.8)	0.93 (23.5)	0.48 (216)
62041P2S02		2 x 9	556	2 x 10.8								
62042P2S02		2 x 12	417	2 x 14.4								
62043P2S02		2 x 15	333	2 x 18.0								
62044P2S02		2 x 18	278	2 x 21.7								
62045P2S02		2 x 22	227	2 x 26.3								
62050P2S02	15	2 x 7	1071	2 x 8.9	4	23	27	81	2.26 (57.5)	0.28 (7)	0.94 (24)	0.58 (262)
62051P2S02		2 x 9	833	2 x 11.1								
62052P2S02		2 x 12	625	2 x 14.8								
62053P2S02		2 x 15	500	2 x 18.5								
62054P2S02		2 x 18	417	2 x 22.2								
62055P2S02		2 x 22	341	2 x 27.2								
62060P2S02	25	2 x 7	1785	2 x 8.3	5	19	28	84	2.28 (58)	0.54 (13.8)	1.36 (34.5)	0.86 (388)
62061P2S02		2 x 9	1377	2 x 10.7								
62062P2S02		2 x 12	1041	2 x 14.2								
62063P2S02		2 x 15	832	2 x 17.8								
62064P2S02		2 x 18	694	2 x 21.4								
62065P2S02		2 x 22	568	2 x 26.2								
62070P2S02	35	2 x 7	2500	2 x 8.4	7	17.7	31	85	2.83 (72)	0.67 (17)	1.32 (33.5)	1 (453)
62071P2S02		2 x 9	1944	2 x 10.6								
62072P2S02		2 x 12	1458	2 x 14.0								
62073P2S02		2 x 15	1166	2 x 17.6								
62074P2S02		2 x 18	972	2 x 20.9								
62075P2S02		2 x 22	795	2 x 25.7								
62080P2S02	50	2 x 7	3571	2 x 8.1	8	15.5	30	86	3.07 (78)	0.89 (22.5)	1.38 (35)	1.48 (670)
62081P2S02		2 x 9	2777	2 x 10.4								
62082P2S02		2 x 12	2083	2 x 13.8								
62083P2S02		2 x 15	1666	2 x 17.3								
62084P2S02		2 x 18	1388	2 x 20.7								
62085P2S02		2 x 22	1136	2 x 25.4								

Electrical measurements @ 20°C ambient temperature. All data subject to change without prior notice.

For 230V/240V operation, connect primaries in series by connecting black and red lead wires together and apply 230V across yellow and violet leads wires.

For 115V/120V operation, connect primaries in parallel by connecting yellow and red lead wires together and black and violet leads wires.

To parallel the secondaries, connect green and brown wires and red and blue together. To put the secondaries in series, the red and brown wires are connected together. Take the output across the green and blue wires.

AC SERIES PC MOUNT CURRENT TRANSFORMERS

Current transformers (CTs) are used for measurement of electric currents and can be known as instrument transformers. When current in a circuit is too high to directly apply to measuring instruments, a current transformer produces a reduced current accurately proportional to the current in the circuit, which can be conveniently connected to measuring and recording instruments. A current transformer also isolates the measuring instruments from what may be very high voltage in the monitored circuit.

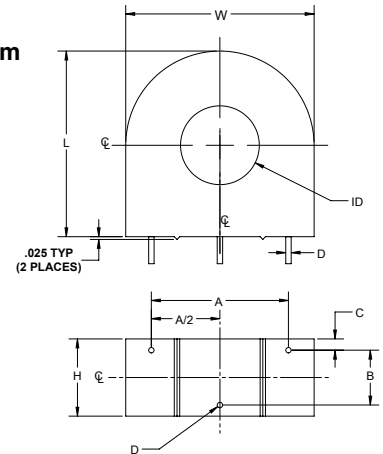
Applications

- Sensing Overload Current
- Ground Fault Detection
- Metering
- Coupling Analog to Digital Circuits

Features

- Current range from 5 - 200 A
- Frequency 50/60 Hz
- Fully encapsulated
- Primary to secondary insulation 4 kV AC
- Operating temperature range: -40° C to + 120° C

AC Series Diagram



Part Number	Rated Ip (Amps)	Turns Ratio	Frequency	DC Resistance (DCR)	RCF	Pin Layout				Size Code
				(@ Nominal)	(@10%)	100 Ω	500 Ω	2k Ω	5k Ω	
AC1005	5	1000:1	50/60 Hz	41.8 Ohm	1.040	0.100	0.450	1.350	1.800	A
AC1010	10	1000:1	50/60 Hz	41.8 Ohm	1.035	0.100	0.450	1.000	1.300	A
AC1015	15	1000:1	50/60 Hz	41.8 Ohm	1.030	0.100	0.430	0.800	1.000	A
AC1020	20	1000:1	50/60 Hz	41.8 Ohm	1.030	0.100	0.420	0.700	0.800	A
AC1025	25	1000:1	50/60 Hz	48 Ohm	1.020	0.100	0.400	1.000	1.200	B
AC1030	30	1000:1	50/60 Hz	48 Ohm	1.020	0.100	0.400	0.850	1.100	B
AC1040	40	1000:1	50/60 Hz	49.3 Ohm	1.020	0.100	0.450	0.750	1.000	C
AC1050	50	1000:1	50/60 Hz	49.3 Ohm	1.020	0.100	0.440	0.700	0.800	C
AC1060	60	1000:1	50/60 Hz	24 Ohm	1.020	0.100	0.380	0.600	0.700	D
AC1075	75	1000:1	50/60 Hz	24 Ohm	1.015	0.100	0.350	0.500	0.600	D
AC1100	100	1000:1	50/60 Hz	21.3 Ohm	1.015	0.100	0.350	0.500	0.600	E
AC1150	150	1000:1	50/60 Hz	11 Ohm	1.010	0.100	0.320	0.550	0.600	F
AC1200	200	1000:1	50/60 Hz	11 Ohm	1.010	0.100	0.300	0.450	0.600	F

Notes: Electrical measurements @ 20°C ambient temperature. All data subject to change without prior notice.

RCF: Ratio Correction Factor Multiple current readings by this factor to compensate for transformer losses

Size Code	W	L	H	A	B	C	D	ID
A	0.938	0.938	0.438	0.6	0.3	0.069	0.032	0.375
B	1.188	1.188	0.563	0.8	0.4	0.082	0.04	0.45
C	1.375	1.375	0.563	1	0.4	0.082	0.04	0.575
D	1.5	1.5	0.625	1.2	0.4	0.112	0.04	0.575
E	1.75	1.75	0.563	1.4	0.4	0.082	0.04	0.75
F	2.188	2.188	0.813	1.8	0.5	0.156	0.04	0.94

TOROIDAL POWER INDUCTORS

Many of the same features offered by our toroidal transformers are also true for our tor DC filtering and AC circuits. A toroidal DC filter choke for line frequency operation used in conjunction with a toroidal power transformer allows our engineering to design a small size transformer. Using toroidal DC filter chokes also reduces the size of the required filter capacitors.

Part Number	Current I DC (Amps)	Current RMS (Amps)	Inductance (mH)	Power (WS)	Core Losses (W)	Copper Losses (W)	OD x HT Inches (mm.)	Weight Lbs. (kg)
L0540	5	3.5	40	0.5	1.5	12.8	3.8 x 1.9 (97 x 48)	2.5 (1.1)
L0560	5	3.5	60	0.75	3	13.8	4.6 x 2.0 (117 x 51)	4 (1.8)
L1020	10	7	20	1	4	16.7	5.5 x 2.0 (140 x 51)	6 (2.7)
L1040	10	7	40	2	5	23.4	5.5 x 2.4 (140 x 61)	8 (3.6)
L1060	10	7	60	3	7	28.6	5.9 x 2.8 (150 x 71)	11.5 (5.2)
L1510	15	10.6	10	1.13	4	18.7	5.5 x 2.0 (140 x 51)	6 (2.7)
L1515	15	10.6	15	1.69	5	22.7	5.5 x 2.4 (140 x 61)	7.5 (3.4)
L1520	15	10.6	20	2.25	5	26.3	5.5 x 2.4 (140 x 61)	8 (3.6)
L1540	15	10.6	40	4.5	8	37.8	6.5 x 2.8 (165 x 71)	15 (6.8)
L2010	20	14.1	10	2	5	23.2	5.5 x 2.4 (140 x 61)	8 (3.6)
L2015	20	14.1	15	3	7	28.4	5.9 x 2.8 (150 x 71)	11.5 (5.2)
L2020	20	14.1	20	4	8	32.8	6.5 x 2.8 (165 x 71)	14 (6.4)
L2040	20	14.1	40	8	12	42.8	8.0 x 3.5 (203 x 89)	27 (12.3)
L3005	30	21.2	5	2.25	5	26.1	5.5 x 2.4 (140 x 61)	8.5 (3.9)
L3010	30	21.2	10	4.5	8	37.8	6.5 x 2.8 (165 x 71)	15 (6.8)
L3015	30	21.2	15	6.75	11	45.9	8.0 x 3.0 (203 x 76)	22 (10)
L3020	30	21.2	20	9	13	43.2	8.0 x 3.5 (203 x 89)	28 (12.7)
L4005	40	28.3	5	4	8	32	6.5 x 2.8 (165 x 71)	14 (6.4)
L4010	40	28.3	10	8	13	43.2	8.0 x 3.5 (203 x 89)	27 (12.3)
L4015	40	28.3	15	12	20	56	10.0 x 3.4 (254 x 86)	39 (17.7)
L5005	50	35.3	5	6.25	11	35	8.0 x 3.0 (203 x 76)	23 (10.4)
L5010	50	35.3	10	12.5	20	57.5	10.0 x 3.4 (254 x 86)	39 (17.7)
L6005	60	42.4	5	9	12	43.2	8.0 x 3.5 (203 x 89)	29 (13.2)

Notes: Electrical measurements @ 20°C ambient temperature. All data subject to change without prior notice.

ENCLOSED MEDICAL ISOLATION TRANSFORMERS

Acme Electric now offers a line of fully enclosed medical isolation transformers, featuring Amveco Toroidal Power technology. For medical grade applications, these units provide additional safety and protection. When using electronic devices in a medical, these medical grade transformers will bring the equipment into compliance with the UL 60601 medical safety standard. The transformers operate at 120V 60Hz input with 120V output. They have built in RFI filtering and in-rush current limiting. The transformer design utilizes toroidal transformer which offers light weight, high efficiency, quiet operation, cool overall temperature, and low stray magnetic field.

Features

- Fully enclosed medical isolation transformers housed in white aluminum enclosure
- Designed for North American 120V 60Hz input operation
- UL listed to UL 60601-1 and c-UL listed to CSA C22.2 No.601.1.
- High efficiency toroidal transformer design yielding overall compact size and low weight.
- Low leakage design. Less than 100 μ A leakage current.
- Built in filtering with RFI interference and inrush protection.
- Surge suppression
- 10 ft hospital grade power cord
- Duplex 'green-dot' hospital grade outlets
- On/Off circuit breaker
- Floor standing or wall mount



ENCLOSED MEDICAL ISOLATION TRANSFORMERS 120 VOLT PRIMARY — 120 SECONDARY VOLT — 60 Hz

VA	Catalog Number	Width (Inches)(Cm.)	Height (Inches)(Cm.)	Length (Inches)(Cm.)	Weight (Lbs.)(Kg.)	Load Regulation	NEMA PLUG	Hospital Grade Duplex Outlets
300	AS30327	5.63 (14.3)	4.13 (10.5)	10.00 (25.4)	10 (4.5)	4.5%	5-15P	(2) 5-15R
600	AS30328	7.13 (18.1)	4.13 (10.5)	12.50 (31.7)	17 (7.7)	2.9%	5-15P	(3) 5-15R
900	AS30329	7.13 (18.1)	4.13 (10.5)	12.50 (31.7)	26 (11.8)	1.5%	5-15P	(4) 5-15R
1200	AS30330	9.13 (23.2)	4.13 (10.5)	14.00 (35.6)	32 (14.5)	1.4%	5-15P	(4) 5-15R
1800	AS30331	9.13 (23.2)	4.13 (10.5)	14.00 (35.6)	37 (16.8)	1.7%	5-20P	(4) 5-20R

