Hammond Transformers

Hammond Power Solutions

Imperator

Fortress

Spartan

Get years of reliable service from a quality transformer at a practical price

HPS Imperator™ control transformers for industrial applications

HPS Imperator control transformers from Hammond are designed for high inrush applications requiring reliable output voltage stability. Designed for industrial applications where electromagnetic devices such as relays, solenoids, etc. are used, they maximize inrush capability and output voltage regulation when electromagnetic devices are initially energized.

HPS Imperator control transformers use Mylar, Nomex and other high-quality insulating materials to electrically insulate turn-to-turn windings, layer-to-layer windings, primary-to-secondary windings and ground. These transformers are vacuum impregnated with VT polyester resin and oven-cured, which seals the surface and eliminates moisture. Filling the entire unit provides a strong mechanical bond and offers protection from the environment. This design utilizes superior insulation systems and is constructed with high quality silicon steel laminations, which provide optimum performance and reliability.

The custom injection-molded cover, with its unique fin-shaped design, provides excellent cooling properties while protecting the coils and terminations from moisture, dirt and other industrial airborne contaminants.

The heavy steel mounting feet are welded to the core, providing maximum strength and low noise in a compact design.

The HPS Imperator's unique terminal block design (patent pending) allows for the quick and easy installation of standard secondary or optional primary 13/32" x 1 1/2" midget/type CC fuse clips on every unit. This is the simplest and most inexpensive fusing installation provided on any industrial control transformer in the market today.

The windings and internal terminations of the HPS Imperator are encapsulated, which protects them from moisture, dirt and other airborne contaminants. The custom molded coil covers with their unique fin-shaped design combine superior transformer cooling properties with a clean bold look.

The HPS Imperator utilizes custom serrated terminals in combination with standard SEMS washer screws for easier assembly and quicker installation as well as superior connection strength when connecting with bare, solid, or stranded wire. It also allows for ring or spade termination connectors with a maximum width of 0.37 in (9.4 mm).

HPS Fortress™ commercial potted transformers

The HPS Fortress commercial potted transformers provide an innovative design with commercial applications where quality, ease of installation, and low cost are key.

All Fortress units are encapsulated with electrical grade silica sand and resin compounds, which completely enclose the core and coil to seal out moisture, airborne contaminants and eliminates corrosion and deterioration.

HPS Spartan™ open core and coil control transformers

The HPS Spartan line of industrial open-style control transformers is ideally suited for general purpose, industrial and light duty loads.

Designed for applications with lower inrush and where less demanding environmental protections are needed, HPS Spartan models offer an efficient and economical solution. They feature molded terminal blocks up to 3000VA or 30A. Optional finger guards and a fuse block adapter kit are available.

Superior quality and value

- Compact, efficient design
- Easy installation and hook-up
- Inexpensive while maintaining superior quality in materials and workmanship
- Wall mounting

Applications

- Lighting
- Motor control circuits
- HVAC
- Signal and alarm systems
- Circuit isolation
- Schools
- Office buildings

HPS Fortress™ Commercial Encapsulated Transformers

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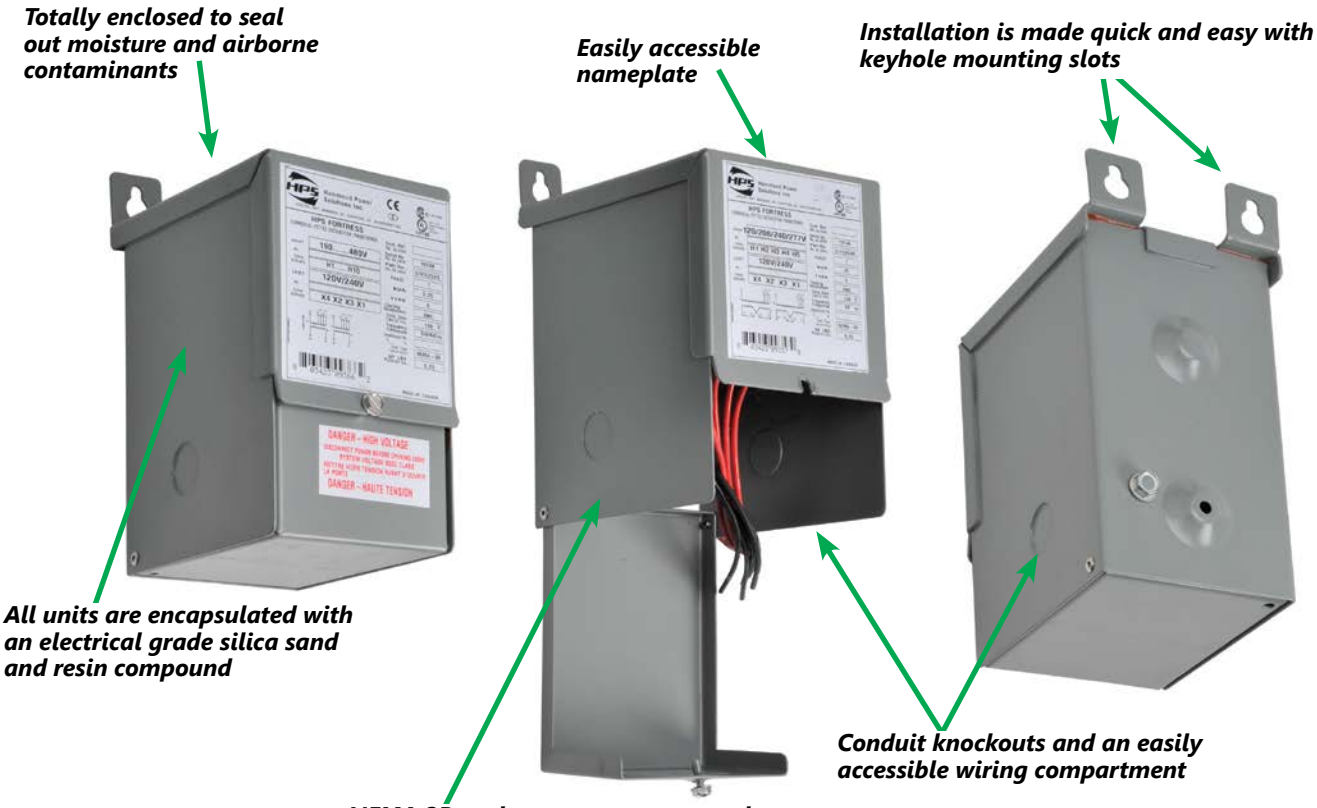
Features



Voltage Regulation

Voltage regulation in transformers is the difference between the "No-Load voltage" and the "Full-Load voltage". This is expressed in terms of percentage.

$$\text{Regulation Percentage} = \frac{E_{\text{No-Load}} - E_{\text{Full Load}}}{E_{\text{Full Load}}} (100\%)$$

The secondary voltage (nominal) listed in these pages are at Full-Load, meaning the point at which the transformer is operating at maximum permissible secondary current. No-Load voltage can increase 6 to 10% max.

Warning: Secondary voltages of transformers may damage some loads. For example, a transformer connected as 480/120 Volt but applied 495 Volt primary can produce at No-Load a voltage of 134 Volts which will damage the inputs of a PLC D0-06AA, whose maximum input voltage is 132 Volt. Notice that the current of D0-06AA input is 10mA, making it very close to No-Load.

HPS Fortress™ Commercial Encapsulated Transformers Primary 480 x 240 VAC Secondary 240 x 120 VAC

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Features

- **Ratings:** Single phase from 0.50kVA to 25kVA; 60 Hz
- **Electrostatic Shield:** Standard on all single phase units 0.75kVA and larger
- **Quality Design:** All units are encapsulated with electrical grade silica sand and resin compounds which completely enclose the core and coil to seal out moisture, airborne contaminants and eliminates corrosion and deterioration.
- **Insulation:** Offering UL class 130°C (266°F) insulation, 95°C (203°F) temperature rise up to 1kVA on single phase; 180°C (356°F) insulation, 135°C (275°F) temperature rise on all units over 1kVA on single phase. Quiet operation with sound levels below NEMA standards.
- **Enclosures:** NEMA 3R enclosures meet or exceed listing criteria including NEMA, ANSI, and OSHA standards for indoor and outdoor service.
- To provide NEMA 3R protection (protection from falling rain), the transformer must be mounted vertically with the mounting tabs facing up.
- Rear and side entry conduit knockouts into an easily accessible and roomy wiring compartment.
- Color is ANSI 61 gray, UL50
- Taps are convenient to select output voltage.
- **Wiring compartment:** Provides tinned copper lead wire terminations up to 5kVA, terminal pad termination on 7.5KVA and larger and standard ground lug assembly for easy cable installation.
- Output voltage adjustable by taps.
- **Temperature Range:** -20°C (-4°F) to average ambient temperature 30°C (86°F), not to exceed 40°C (104°F)
- **Installation made quick and easy:** All encapsulated transformers are designed for wall mounting and include keyhole mounting slots.
- **10 year warranty** (limited to mfg. defects)

Agency Approvals

- UL Listed File No. E50394 (Type Q)
- CSA File No. LR3902 (Type Q)
- CE (up to 10 kVA)
- RoHS

C1FC50LE

C1F1C5LES

C1F005LES

HPS Fortress 480x240/240x120 Encapsulated Transformer Specifications

Part Number	Price	kVA Rating	Primary Voltage (60Hz)	Secondary Voltage (Nominal)	Output Current (Amps) 120/240	Impedance %		Total Heat Dissipation (Watts)*	Product Weight lb [kg]	Drawing
						VA	%z			
C1FC50LE	$178.00	0.50	240x480	120x240	4.17/2.08	500	7.6	35.8	15.0 [6.8]	PDF
C1FC75LES	$225.00	0.75			6.25/3.13	750	5.6	57.2	18.0 [8.2]	PDF
C1F1C0LES	$270.00	1.0			8.33/4.17	1000	4.8	75.3	22.0 [10.0]	PDF
C1F1C5LES	$323.00	1.5			12.5/6.25	1500	4.1	100.0	25.0 [11.3]	PDF
C1F002LES	$395.00	2.0			16.7/8.33	2000	4.3	121.6	40.0 [18.1]	PDF
C1F003LES	$497.00	3.0			25.0/12.5	3000	3.7	160.8	55.0 [25.0]	PDF
C1F005LES	$727.00	5.0			41.7/20.8	5000	4.2	314.0	88 [39.9]	PDF
C1F007LES	$1,079.00	7.5			62.5/31.3	7500	3.6	402.0	145 [65.98	PDF
C1F010LES	$1,246.00	10			83.3/41.6	10000	3.7	525.0	165 [74.8]	PDF
C1F015LES**	$1,602.00	15			125/62.5	15000	2.4	585.0	286 [129.7]	PDF
C1F025LES**	$1,993.00	25			208.3/104.2	25000	2.0	838.0	346 [156.9]	PDF

** Heat dissipation calculated based on full rated load on transformer.*
*** Not CE*

HPS Fortress™ Commercial Encapsulated Transformers Primary 480 x 240 VAC Secondary 240 x 120 VAC

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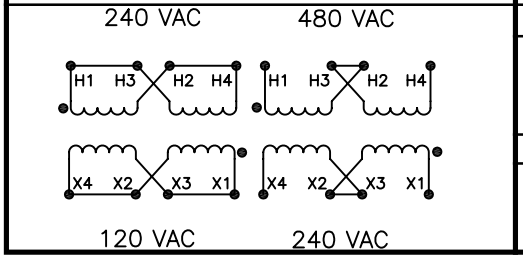
Wiring Diagram - For 500VA to 5kVA

SCHEMATIC



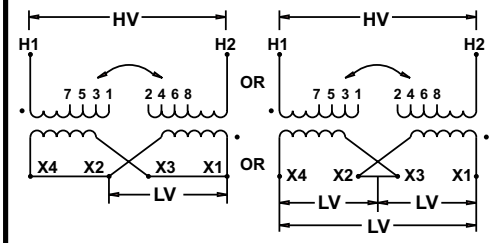
CONNECTIONS

Primary Volts	Connect lines to	Inter-connect
480	H1, H4	H2-H3
240	H1, H4	H1-H3, H2-H4

Secondary Volts	Connect lines to	Inter-connect
240	X1, X4	X2-X3
120/240	X1, X2, X4	X2-X3
120	X1, X2	X2-X4, X1-X3

Wiring Diagram - For 7.5kVA to 25kVA

SCHEMATIC



CONNECTIONS

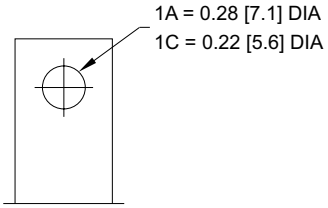
Primary Volts	Connect lines to	Inter-connect
504	H1, H2	1-2
492	H1, H2	2-3
480	H1, H2	3-4
468	H1, H2	4-5
456	H1, H2	5-6
444	H1, H2	6-7
432	H1, H2	7-8
	H1, H2	H1-2, H2-1
240	H1, H2	H1-4, H2-3
228	H1, H2	H1-6, H2-5
216	H1, H2	H1-8, H2-7

Secondary Volts	Connect lines to	Inter-connect
240	X1, X4	X2- X3
120	X1, X2	X2-X4, X1-X3
120/240	X1, X2, X4	X2-X3

Termination*		
Part No.	***HV***	***LV***
C1FC50LE	#18 AWG Leads	#18 AWG Leads
C1FC75LES	#18 AWG Leads	#14 AWG Leads
C1F1C0LES	#18 AWG Leads	#14 AWG Leads
C1F1C5LES	#14 AWG Leads	#14 AWG Leads
C1F002LES	#14 AWG Leads	#14 AWG Leads
C1F003LES	#14 AWG Leads	#14 AWG Leads
C1F005LES	#14 AWG Leads	#12 AWG Leads
C1F007LES	#12 AWG Leads	Terminal Pad 1C
C1F010LES	Mechanical lug #14-2 AWG	Mechanical lug #14-2 AWG
C1F015LES	Terminal Pad 1A	Terminal Pad 1A
C1F025LES	Mechanical Lug #14-2/0 AWG	Mechanical Lug 6-250MCM

** Transformers are provided with copper leads, terminal pads or mechanical lugs.*

Terminal Pad Diagram



Dimensions (in [mm])