

HPS Fortress™ Commercial Encapsulated Transformers

Primary 480 x 240 VAC

Secondary 240 x 120 VAC

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 Wt/Lbs
						VA	%z		
C1FC50LE	<--->	0.50	240x480	120x240	4.17/2.08	500	7.6	35.8	15.0
C1FC75LES	<--->	0.75			6.25/3.13	750	5.6	57.2	18.0
C1F1C0LES	<--->	1.0			8.33/4.17	1000	4.8	75.3	22.0
C1F1C5LES	<--->	1.5			12.5/6.25	1500	4.1	100.0	25.0
C1F002LES	<--->	2.0			16.7/8.33	2000	4.3	121.6	40.0
C1F003LES	<--->	3.0			25.0/12.5	3000	3.7	160.8	55.0
C1F005LES	<--->	5.0			41.7/20.8	5000	4.2	314.0	88
C1F007LES	<--->	7.5			62.5/31.3	7500	3.6	402.0	145
C1F010LES	<--->	10			83.3/41.6	10000	3.7	525.0	165
C1F015LES**	<--->	15			125/62.5	15000	2.4	585.0	286
C1F025LES**	<--->	25			208.3/104.2	25000	2.0	838.0	346

* Heat dissipation calculated based on full rated load on transformer.

** Not CE



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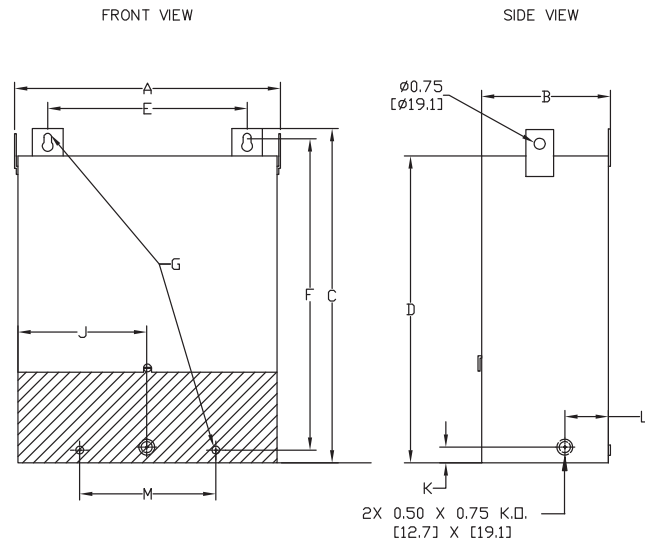
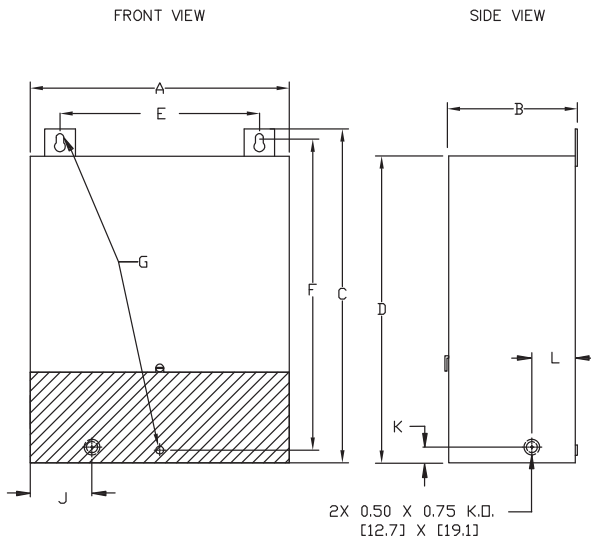
Primary 480 x 240 VAC

Secondary 240 x 120 VAC

Dimensions

Figure A - 500VA to 3kVA

Figure B - 5kVA to 25kVA



* Front bottom panel is hinged for access to terminals, shaded areas show view of rear mounting holes and knockout.

Dimensions inches [mm]

HPS Fortress 480x240/240x120 Encapsulated Transformer Dimensions												
Part Number	Mtg. Fig.	Overall Dimensions inches (mm)				Mounting Holes inches (mm)		Mounting Hole Dia. inches (mm)	Knock Out Dimensions inches (mm)			Rear Mtg. Holes inches (mm)
		A	B	C	D	E	F	G	J	K	L	M
C1FC50LE	A	5.00 (127.0)	4.75 (120.7)	9.25 (235.0)	8.25 (209.6)	3.88 (98.6)	7.75 (196.9)	0.22 (5.6)	1.00 (25.4)	1.50 (38.1)	2.00 (50.8)	N/A
C1FC75LES	A	5.00 (127.0)	4.75 (120.7)	9.25 (235.0)	8.25 (209.6)	3.88 (98.6)	7.75 (196.9)	0.22 (5.6)	1.00 (25.4)	1.50 (38.1)	2.00 (50.8)	
C1FC0LES	A	5.88 (149.4)	5.50 (139.7)	10.00 (254.0)	8.50 (215.9)	4.13 (104.9)	8.25 (209.6)	0.28 (7.1)	1.25 (31.8)	1.50 (38.1)	2.00 (50.8)	
C1FC5LES	A	5.88 (149.4)	5.50 (139.7)	10.00 (254.0)	8.50 (215.9)	4.13 (104.9)	8.25 (209.6)	0.28 (7.1)	1.25 (31.8)	1.50 (38.1)	2.00 (50.8)	
C1F002LES	A	7.00 (177.8)	6.50 (165.1)	11.25 (285.8)	9.75 (247.7)	5.38 (136.7)	9.50 (241.3)	0.28 (7.1)	1.50 (38.1)	1.50 (38.1)	2.00 (50.8)	
C1F003LES	A	7.00 (177.8)	6.50 (165.1)	11.25 (285.8)	9.75 (247.7)	5.38 (136.7)	9.50 (241.3)	0.28 (7.1)	1.50 (38.1)	1.50 (38.1)	2.00 (50.8)	
C1F005LES	B	10.00 (254.0)	7.75 (196.9)	17.25 (438.2)	15.25 (387.4)	7.38 (187.5)	15.38 (390.7)	0.44 (11.2)	4.00 (101.6)	2.00 (50.8)	2.00 (50.8)	6.00 (152.4)
C1F007LES	B	12.25 (311.2)	9.25 (234.9)	17.63 (447.8)	15.56 (395.2)	9.38 (238.3)	14.88 (377.9)	0.44 (11.2)	5.00 (127.0)	2.00 (50.8)	2.00 (50.8)	8.00 (203.2)
C1F010LES	B	12.25 (311.2)	9.25 (234.9)	20.88 (530.4)	18.88 (479.6)	9.38 (238.3)	18.13 (460.5)	0.44 (11.2)	5.00 (127.0)	2.00 (50.8)	2.00 (50.8)	8.00 (203.2)
C1F015LES	B	14.50 (368.3)	10.75 (273.1)	21.38 (543.1)	19.38 (492.3)	11.63 (295.4)	18.63 (473.2)	0.44 (11.2)	6.00 (152.4)	2.00 (50.8)	2.00 (50.8)	10.00 (254.0)
C1F025LES	B	14.50 (368.3)	10.75 (273.1)	27.38 (695.5)	24.88 (631.9)	11.13 (282.7)	24.50 (622.3)	0.56 (14.2)	6.00 (152.4)	2.00 (50.8)	2.00 (50.8)	10.00 (254.0)

Note: All dimensions have a tolerance of ±0.06 inches unless otherwise noted.

To provide NEMA 3R protection (protection from falling rain), the transformer must be mounted vertically with the mounting tabs facing up. Additional information in installation insert.

Company Information

Systems Overview

Programmable Controllers

Field I/O

Software

C-more & other HMI

Drives

Soft Starters

Motors & Gearbox

Steppers/ Servos

Motor Controls

Proximity Sensors

Photo Sensors

Limit Switches

Encoders

Current Sensors

Pressure Sensors

Temperature Sensors

Pushbuttons/ Lights

Process

Relays/ Timers

Comm.

Terminal Blocks & Wiring

Power

Circuit Protection

Enclosures

Tools

Pneumatics

Appendix

Product Index

Part # Index

HPS Fortress™ Commercial Encapsulated Transformers

Primary 480 x 240 VAC

Secondary 240 x 120 VAC

Wiring Diagram - For 500VA to 3kVA

SCHEMATIC		CONNECTIONS		
240 VAC	480 VAC	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 VAC	240 VAC	120	X1, X2	X2-X4, X1-X3

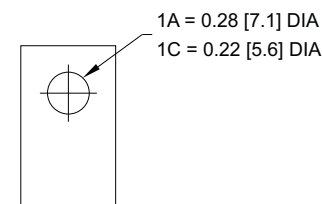
Wiring Diagram - For 5kVA to 25kVA

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
		240	H1, H2	H1-2, H2-1
		228	H1, H2	H1-4, H2-3
		216	H1, H2	H1-6, H2-5
				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	#10 AWG Leads	Terminal Pad 1C
C1F015LES	#8 AWG Leads	Terminal Pad 1A
C1F025LES	#6 AWG Leads	Terminal Pad 1A

* Transformers are provided with copper leads or copper terminal pads.

Terminal Pad Diagram



Dimensions inches [mm]



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Features

Totally enclosed to seal out moisture and airborne contaminants

Easily accessible nameplate

Installation is made quick and easy with keyhole mounting slots

All units are encapsulated with an electrical grade silica sand and resin compound

NEMA 3R enclosure meets or exceeds listing criteria including NEMA and ANSI standards for indoor and outdoor applications

Conduit knockouts and an easily accessible wiring compartment



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.