



# CONTROL POWER TRANSFORMERS

## OTHER PRODUCTS

Dry Substation




Liquid Substation



Custom 600V Dry Type



[mgmtransformers.com](http://mgmtransformers.com) 

[sales@mgmtransformers.com](mailto:sales@mgmtransformers.com) 

## Control Power Transformers

MGM Transformers Control Power Transformers are specially designed to accommodate the momentary current inrush caused when electromagnetic components are energized.

Control power transformers deliver excellent secondary voltage requirements and meet or exceed the standards established by UL and cUL. Their rugged construction and quality electrical characteristics ensure reliable operation of electromagnetic devices and trouble-free performance.

### FINGER-SAFE TERMINALS

Terminals are molded into the transformer for extra durability and are finger safe. The deep terminal channels help prevent short circuits from stray wires.

### MOUNTING ADAPTOR FOR FUSE BLOCKS

Included on all transformers.

### PRODUCT LABEL

All MGMT control power transformers come labeled with power specifications, agency listings, and manufacturing date codes.

### QUALITY MATERIALS

High-grade silicon steel laminations and fine quality copper magnet wire reduce core losses and ensure high efficiency.

### ENVIRONMENTAL PROTECTION

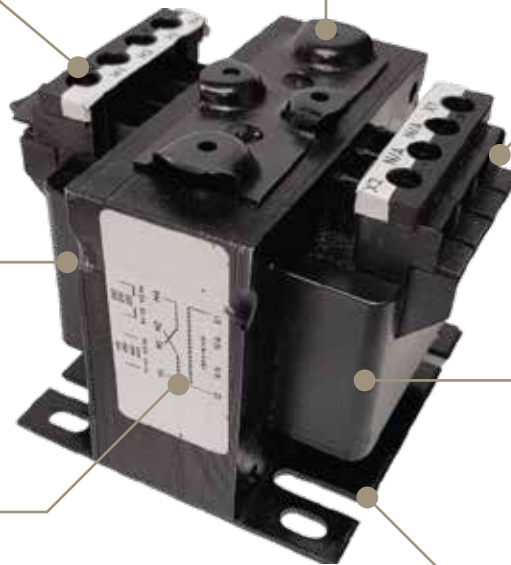
All MGMT control power transformers come labeled with power specifications, agency listings, and manufacturing date codes.

### WIRING DIAGRAM

All MGMT control power transformers come with wiring diagrams for ease of installation.

### FLEXIBLE MOUNTING

All Heavy gauge steel mounting foot ensures a secure installation. Slotted holes allow for flexible mounting locations.



## PRODUCT FEATURES

- Enclosed coils (50-750VA); Completely encloses the transformer coils to protect against moisture, dirt, dust and industrial contaminants for maximum protection in industrial environments.
- Finger Safe Terminals integrally built in. Up to 30% greater terminal contact area permits low-loss connections. Extra deep barriers reduce the chance of shorts from frayed leads or careless wiring. Pressure plate terminals designed to accept bare wire, ferrules, spade or ring lugs.
- Attractive black matte finish and easy to read label with complete wiring diagram.
- Terminals are molded into the transformer for a robust, compact design. A full quarter inch of thread on the terminal screws prevents stripping and pullout.
- Mounting plate is heavy gauge steel to add strength to core construction and provide stability. Slotted mounting feet permit easy and flexible installation.
- Two parallel jumper links come standard with transformers when required so they can be wired for dual primary voltages.

## Transformer Selection Process

Selecting a transformer for Control Power circuit applications requires knowledge of the following terms:

**Inrush VA** Is the product of load voltage (V) multiplied by the current (A) that is required during circuit start-up. It is calculated by adding the in-rush VA requirements of all devices (contactors, timers, relays, pilot lights, solenoids, etc.), which will be energized together. Inrush VA requirements are best obtained from the component manufacturer.

**Sealed VA** Is the product of load voltage (V) multiplied by the current (A) after initial start-up or under normal operating conditions. It is calculated by adding the sealed VA requirements of all electrical components that will be energized at any given time. Sealed VA requirements are best obtained from the component manufacturer. Sealed VA is also referred to as steady state VA.

**Primary Voltage** Is the voltage available from the electrical distribution system and its operational frequency, which is connected to the transformer supply voltage terminals.

**Secondary Voltage** Is the voltage required for load operation which is connected to the transformer load voltage terminals.

### INRUSH REGULATION DATA CHART

#### INRUSH VA @ 0.4 POWER FACTOR

<i>Continuous VA Transformer Nameplate Rating</i>	<i>85% Secondary Voltage</i>	<i>90% Secondary Voltage</i>	<i>95% Secondary Voltage</i>
25	125	100	75
50	200	167	131
75	311	257	200
100	471	377	276
150	923	716	491
200	1125	883	622
250	1944	1476	970
300	2040	1547	1020
350	3300	2400	1400
500	3191	2500	1745
750	6025	4520	2915
1000	8100	5600	3000
1500	16000	12000	6600
2000	19500	13500	7300
3000	25500	18250	10500
5000	75000	56000	33000

## Transformer Selection Process

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Once the circuit variables have been determined, transformer selection is a simple 5-step process.

1

Determine the application inrush VA by using the following industry accepted formula:

$$\text{Application Inrush VA} = \sqrt{((\text{Inrush VA})^2 + (\text{Sealed VA})^2)}$$

2

Refer to the Regulation Data Chart.

If the primary voltage is basically stable and does not vary by more than 5% from nominal, the 90% secondary voltage column should be used.

If the primary voltage varies between 5% and 10% of nominal, the 95% secondary voltage column should be used.

3

After determining the proper secondary voltage column, read down until a value equal to or greater than the application inrush VA is found. In no case should a figure less than the application inrush VA be used.

4

Read left to the Transformer VA Rating column to determine the proper transformer for this application.

Final check:

Confirm the Transformer VA Rating is equal to or greater than the total sealed requirements. If not, select a transformer with a VA rating equal to or greater than the total sealed VA.

5

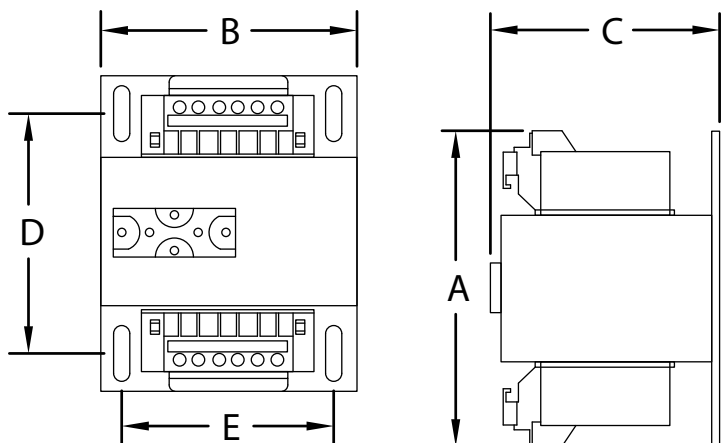
Refer to the following pages to determine the proper catalog number based on the transformer VA, and primary and secondary voltage requirements.

## MGM Transformers Voltage Groups

MGM Transformers are available in a wide variety of primary and secondary voltages, as displayed below. If you do not see the voltages required for your application, please contact us for a customized option.

VOLTAGE TABLE				
Group	Primary	Secondary	VA Sizes	MGM Stock
A	220 x 440, 230 x 460, 240 x 480	110, 115, 120	50 - 5000	✓
B	120 x 240	24	50 - 750	✓
C	208/277	120	50 - 750	✓
D	200/220/440, 208/230/460, 240/480	110, 115, 120	50 - 3000	✓
E	240 x 480	120 x 240	50 - 3000	
F	240 x 480	24	50 - 750	
G	550, 575, 600	110, 115, 120	50 - 750	
H	380/400/415	110/220	50 - 5000	
I	200/208, 220/230/240, 440/460/480	23 x 110, 24 x 115, 25 x 120	50 - 500	
J	208/277	24	50 - 750	

**EXAMPLE:** general representation of a typical MGM Transformer without fusing accessories or jumper links. Transformers 50VA - 350VA have 4 terminals per side, and units 500VA and higher have 6 terminals per side.



TOP VIEW

SIDE VIEW



# CONTROL POWER TRANSFORMERS

## Voltage Groups

### P220 x 440, 240 x 480 PRIMARY VOLTS 110, 115, 120 SECONDARY VOLTS 50/60 Hz | Wiring Diagram A

Catalog Number	VA	Depth (A)	Width (B)	Height (C)	Mounting Depth (D)	Mounting Width (E)	Mounting Hole Depth	Mounting Hole Width	Shipping Weight (Lbs)
M22585	50	3.23	3.00	2.79	2.00	2.50	0.203	0.406	2.6
M22426	75	3.73	3.00	2.79	2.50	2.50	0.203	0.406	3.5
M22427	100	4.23	3.38	3.10	2.38	2.81	0.203	0.406	4.2
M22428	150	4.18	3.75	3.41	2.88	3.13	0.203	0.406	6.7
M22645	200	3.96	4.50	4.04	2.50	3.75	0.203	0.406	8.5
M22429	250	4.46	4.50	4.04	2.88	3.75	0.203	0.406	10.0
M22646	300	4.46	4.50	4.04	3.25	3.75	0.203	0.406	11.3
M22430	350	5.19	4.50	4.04	3.75	3.75	0.203	0.406	13.6
M22431	500	5.17	5.25	4.66	4.25	4.38	0.313	1.063	19.2
M22432	750	6.42	5.25	4.66	5.38	4.38	0.313	1.063	28.1
M22433	1000	6.61	7.00	5.65	4.00	6.13	0.313	1.063	29.8
M22434	1500	7.62	7.00	5.65	4.50	6.13	0.313	1.063	30.0
M22435	2000	8.37	7.00	5.65	5.13	6.13	0.313	1.063	38.0
M22436	3000	7.82	9.00	7.62	4.25	6.50	0.440	1.000	53.0
M22437	5000	9.06	9.00	7.62	7.25	7.50	0.440	1.000	89.0

### 120 x 240 PRIMARY VOLTS 24 SECONDARY VOLTS 50/60 Hz | Wiring Diagram B

Catalog Number	VA	Depth (A)	Width (B)	Height (C)	Mounting Depth (D)	Mounting Width (E)	Mounting Hole Depth	Mounting Hole Width	Shipping Weight (Lbs)
M23485	50	3.00	3.32	2.79	2.00	2.50	0.203	0.406	2.6
M23486	75	3.00	3.82	2.79	2.50	2.50	0.203	0.406	3.5
M23487	100	3.38	3.78	3.11	2.38	2.81	0.203	0.406	4.2
M23488	150	3.75	4.27	3.42	2.88	3.13	0.203	0.406	6.7
M24816	200	3.96	4.50	4.04	2.50	3.75	0.203	0.406	8.5
M23489	250	4.46	4.50	4.04	2.88	3.75	0.203	0.406	10.0
M24817	300	4.46	4.50	4.04	3.25	3.75	0.203	0.406	11.3
M23490	350	5.19	4.50	4.04	3.75	3.75	0.203	0.406	13.6
M23491	500	5.17	5.25	4.66	4.25	4.38	0.313	1.063	19.2

### 208/277 PRIMARY VOLTS 120 SECONDARY VOLTS 50/60 Hz | Wiring Diagram C

Catalog Number	VA	Depth (A)	Width (B)	Height (C)	Mounting Depth (D)	Mounting Width (E)	Mounting Hole Depth	Mounting Hole Width	Shipping Weight (Lbs)
M24454	50	3.23	3.00	2.79	2.00	2.50	0.203	0.406	2.6
M24455	75	3.73	3.00	2.79	2.50	2.50	0.203	0.406	3.5
M24456	100	4.23	3.38	3.10	2.38	2.81	0.203	0.406	4.2
M24457	150	4.18	3.75	3.41	2.88	3.13	0.203	0.406	6.7
M24820	200	3.96	4.50	4.04	2.50	3.75	0.203	0.406	8.5
M24458	250	4.46	4.50	4.04	2.88	3.75	0.203	0.406	10.0
M24821	300	4.46	4.50	4.04	3.25	3.75	0.203	0.406	11.3
M24459	350	5.19	4.50	4.04	3.75	3.75	0.203	0.406	13.6
M24460	500	5.17	5.25	4.66	4.25	4.38	0.313	1.063	19.2
M24461	750	6.42	5.25	4.66	5.38	4.38	0.313	1.063	28.1



# CONTROL POWER TRANSFORMERS

## Voltage Groups

### 200/220/440, 208/230/460, 240/480 PRIMARY VOLTS 110, 115, 120 SECONDARY VOLTS 50/60 Hz | Wiring Diagram D

Catalog Number	VA	Depth (A)	Width (B)	Height (C)	Mounting Depth (D)	Mounting Width (E)	Mounting Hole Depth	Mounting Hole Width	Shipping Weight (Lbs)
M23613	50	3.23	3.00	2.79	2.00	2.50	0.203	0.406	2.6
M23614	75	3.73	3.00	2.79	2.50	2.50	0.203	0.406	3.5
M23615	100	3.69	3.38	3.10	2.38	2.81	0.203	0.406	4.2
M23616	150	4.18	3.75	3.41	2.88	3.13	0.203	0.406	6.7
M24617	200	3.96	4.50	4.04	2.88	3.75	0.203	0.406	8.5
M23618	250	4.47	4.50	4.04	3.25	3.75	0.203	0.406	10.0
M24619	300	4.47	4.50	4.04	3.25	3.75	0.203	0.406	11.3
M23620	350	5.19	4.50	4.04	3.75	3.75	0.203	0.406	13.6
M23621	500	5.17	5.25	4.66	4.75	4.38	0.313	1.063	16.0
M22612	750	6.42	5.25	4.66	5.38	4.38	0.313	1.063	28.1
M22613	1000	6.21	7.00	5.65	4.00	6.13	0.313	1.063	29.8
M22614	1500	7.23	7.00	5.65	4.50	6.13	0.313	1.063	30.0
M22615	2000	7.98	7.00	5.43	5.13	6.13	0.313	1.063	38.0
M22617	3000	7.50	9.00	7.62	4.25	6.50	0.440	1.000	53.0
M22618	5000	9.00	9.00	7.62	7.25	7.50	0.440	1.000	89.0

### 240 x 480 PRIMARY VOLTS 120 240 SECONDARY VOLTS 50/60 Hz | Wiring Diagram E

Catalog Number	VA	Depth (A)	Width (B)	Height (C)	Mounting Depth (D)	Mounting Width (E)	Mounting Hole Depth	Mounting Hole Width	Shipping Weight (Lbs)
M23691	50	3.41	3.00	2.79	2.00	2.50	0.203	0.406	2.6
M23692	75	3.91	3.00	2.79	2.50	2.50	0.203	0.406	3.5
M23693	100	3.86	3.38	3.10	2.38	2.81	0.203	0.406	4.2
M23694	150	4.36	3.75	3.41	2.88	3.13	0.203	0.406	6.7
M23695	200	4.14	4.50	4.04	2.50	3.75	0.203	0.406	8.5
M23696	250	4.64	4.50	4.04	2.88	3.75	0.203	0.406	10.0
M23697	300	4.64	4.50	4.04	3.25	3.75	0.203	0.406	11.3
M23698	350	5.37	4.50	4.04	3.75	3.75	0.203	0.406	13.6
M23699	500	5.75	5.25	4.66	4.25	4.38	0.313	1.063	17.3
M23700	750	6.74	5.25	4.66	5.38	4.38	0.313	1.063	28.1
M23701	1000	7.01	7.00	5.65	5.38	4.38	0.313	1.063	29.8
M23702	1500	8.00	7.00	5.65	4.50	6.13	0.313	1.063	30.0
M24215	2000	8.76	7.00	5.65	5.13	6.13	0.313	1.063	38.0
M23703	3000	8.14	9.00	7.62	4.25	6.50	0.44	1.00	53.0
M24216	5000	9.14	9.00	7.62	7.25	7.50	0.44	1.00	89.0



# CONTROL POWER TRANSFORMERS

## Voltage Groups

### 240 x 480 PRIMARY VOLTS 24 SECONDARY VOLTS 50/60 Hz | Wiring Diagram F

Catalog Number	VA	Depth (A)	Width (B)	Height (C)	Mounting Depth (D)	Mounting Width (E)	Mounting Hole Depth	Mounting Hole Width	Shipping Weight (Lbs)
M23493	50	3.32	3.00	2.79	2.00	2.50	0.203	0.406	2.6
M23494	75	3.82	3.00	2.79	2.50	2.50	0.203	0.406	3.5
M23495	100	3.78	3.38	3.10	2.38	2.81	0.203	0.406	4.2
M23496	150	4.27	3.75	3.41	2.88	3.13	0.203	0.406	6.7
M23497	250	4.55	4.50	4.04	2.88	3.75	0.203	0.406	10.0
M23498	350	5.28	4.50	4.04	3.75	3.75	0.203	0.406	13.6
M23499	500	5.75	5.25	4.66	4.25	4.38	0.313	1.063	15.8
M23500	750	7.00	5.25	4.66	5.38	4.38	0.313	1.063	28.1

### 550, 575, 600 PRIMARY VOLTS 110, 115, 120 SECONDARY VOLTS 50/60 Hz | Wiring Diagram G

Catalog Number	VA	Depth (A)	Width (B)	Height (C)	Mounting Depth (D)	Mounting Width (E)	Mounting Hole Depth	Mounting Hole Width	Shipping Weight (Lbs)
M22482	50	3.23	3.00	2.79	2.00	2.50	0.203	0.406	2.6
M22483	75	3.73	3.00	2.79	2.50	2.50	0.203	0.406	3.5
M22484	100	3.69	3.38	3.10	2.38	2.81	0.203	0.406	4.2
M22485	150	4.17	3.75	3.41	2.88	3.13	0.203	0.406	6.7
M23486	250	4.47	4.50	4.04	2.88	3.75	0.203	0.406	10.0
M22487	350	5.19	4.50	4.04	3.75	3.75	0.203	0.406	13.6
M22488	500	5.17	5.25	4.66	4.25	4.38	0.313	1.063	15.9
M22489	750	6.42	5.25	4.66	5.38	4.38	0.313	1.063	28.1
M23767	1000	6.21	7.00	5.65	4.00	6.13	0.313	1.063	29.8

### 380/400/415 PRIMARY VOLTS: 110/220 SECONDARY VOLTS 50/60 Hz | Wiring Diagram H

Catalog Number	VA	Depth (A)	Width (B)	Height (C)	Mounting Depth (D)	Mounting Width (E)	Mounting Hole Depth	Mounting Hole Width	Shipping Weight (Lbs)
M24444	50	3.32	3.00	2.79	2.00	2.50	0.203	0.406	2.6
M24445	75	3.82	3.00	2.79	2.50	2.50	0.203	0.406	3.5
M24446	100	3.78	3.38	3.10	2.38	2.81	0.203	0.406	4.2
M24447	150	4.27	3.75	3.41	2.88	3.13	0.203	0.406	6.7
M24448	200	4.05	4.50	4.04	2.50	3.75	0.203	0.406	8.5
M24449	250	4.55	4.50	4.04	2.88	3.75	0.203	0.406	10.0
M24450	300	4.55	4.50	4.04	3.25	3.75	0.203	0.406	11.3
M24451	350	5.28	4.50	4.04	3.75	3.75	0.203	0.406	13.6
M24452	500	5.75	5.25	4.66	4.25	4.38	0.313	1.063	16.1
M24453	750	7.00	5.25	4.66	5.38	4.38	0.313	1.063	28.1

## Voltage Groups

### 200/208, 220/230/240, 440/460/480 PRIMARY VOLTS 23 x 110, 24 x 115, 25 x 120 SECONDARY VOLTS 50/60 Hz | Wiring Diagram I

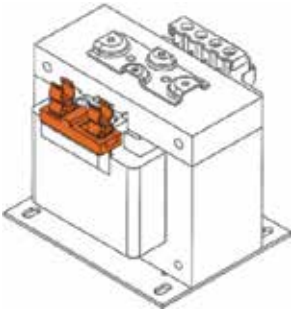
Catalog Number	VA	Depth (A)	Width (B)	Height (C)	Mounting Depth (D)	Mounting Width (E)	Mounting Hole Depth	Mounting Hole Width	Shipping Weight (Lbs)
M24901	45	3.73	3.00	2.79	2.50	2.50	0.203	0.406	3.5
M22475	50	3.73	3.00	2.79	2.50	2.50	0.203	0.406	3.5
M22476	75	3.69	3.38	3.11	2.38	2.81	0.203	0.406	4.2
M22477	100	4.18	3.75	3.41	2.88	3.13	0.203	0.406	6.7
M22478	150	4.18	3.75	3.41	2.88	3.13	0.203	0.406	6.7
M24812	200	4.47	4.50	4.04	2.88	3.75	0.203	0.406	10.0
M22479	250	5.19	4.50	4.04	3.75	3.75	0.203	0.406	13.6
M24902	300	5.19	4.50	4.04	3.75	3.75	0.203	0.406	13.6
M22480	350	5.17	5.25	4.66	4.25	4.38	0.313	1.063	16.1
M22481	500	6.42	5.25	4.66	5.38	4.38	0.313	1.063	28.1
M22473	750	7.23	7.00	5.65	4.00	6.13	0.313	1.063	30.0
M23994	1000	7.98	7.00	5.43	5.13	6.13	0.313	1.063	38.0

### 208/277 PRIMARY VOLTS 24 SECONDARY VOLTS 50/60 Hz | Wiring Diagram J

Catalog Number	VA	Depth (A)	Width (B)	Height (C)	Mounting Depth (D)	Mounting Width (E)	Mounting Hole Depth	Mounting Hole Width	Shipping Weight (Lbs)
M24100	50	3.23	3.00	2.79	2.00	2.50	0.203	0.406	2.6
M24101	75	3.73	3.00	2.79	2.50	2.50	0.203	0.406	3.5
M24102	100	4.23	3.38	3.10	2.38	2.81	0.203	0.406	4.2
M24103	150	4.18	3.75	3.41	2.88	3.13	0.203	0.406	6.7
M24104	200	3.96	4.50	4.04	2.50	3.75	0.203	0.406	8.5
M24105	250	4.46	4.50	4.04	2.88	3.75	0.203	0.406	10.0
M24106	300	4.46	4.50	4.04	3.25	3.75	0.203	0.406	11.3
M24107	350	5.19	4.50	4.04	3.75	3.75	0.203	0.406	13.6
M24108	500	5.17	5.25	4.66	4.25	4.38	0.313	1.063	19.2
M24109	750	6.42	5.25	4.66	5.38	4.38	0.313	1.063	28.0

## Accessories

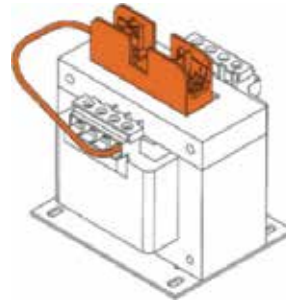
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### OPTION 1

Secondary Fuse Clip

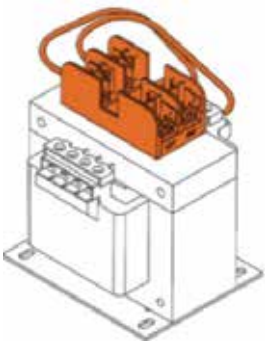
**MGMT Part Number:**  
M23725 - fits 50 - 750 VA  
M24665 - fits 1-5 KVA



### OPTION 2

Secondary Fuse Block

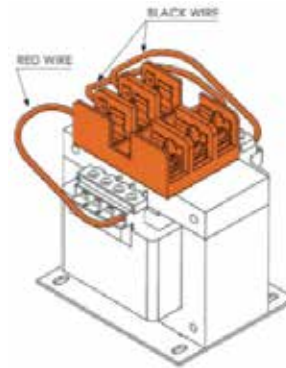
**MGMT Part Number:**  
M24084



### OPTION 3

Primary Fuse Block

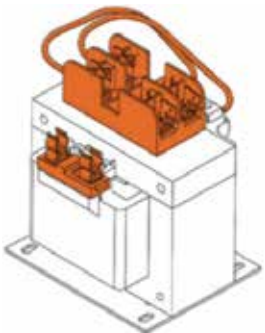
**MGMT Part Number:**  
M23721



### OPTION 4

Primary & Secondary Fuse Block

**MGMT Part Number:**  
M24085



### OPTION 5

Primary Fuse Block & Secondary Fuse Clips

**MGMT Part Number:**  
M24086

## Accessories

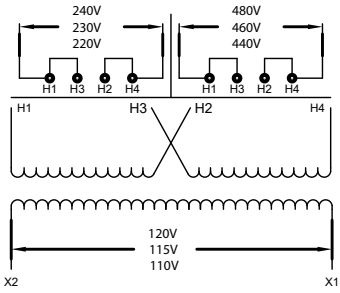
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MGM Part #	ACCESSORIES - FUSING OPTIONS (KITS)
M23722	Primary fuse cover with puller - fits any fuse block
M24286	Primary fuse cover with puller - fits any fuse block (25 pack)
M23724	Secondary fuse cover - fits any secondary fuse clip
M24291	Secondary fuse cover - fits any secondary fuse clip (25 pack)
M23725	Secondary fuse clip fits 50 - 750VA
M24665	Secondary fuse clip fits 1-5 KVA
M24084	Single pole secondary fuse block - fits all models
M23721	Dual pole primary fuse block - fits all models
M24085	Dual pole primary fuse block and secondary fuse block - fits 150VA +
M24086	Dual pole primary fuse block and secondary fuse clip
M25073	Terminal Covers 4 Position W/O Fuse, 50-350VA Frame, (25 pack)
M25074	Terminal Covers 4 Position W/Fuse, 50-350VA Frame, (25 pack)
M25075	Terminal Covers 6 Position W/O Fuse, 500-750VA Frame, (25 pack)
M25076	Terminal Covers 6 Position W/Fuse, 500-750VA Frame, (25 pack)
M25077	Terminal Covers 6 Position, 1000 - 5000VA Frame, (25 pack)

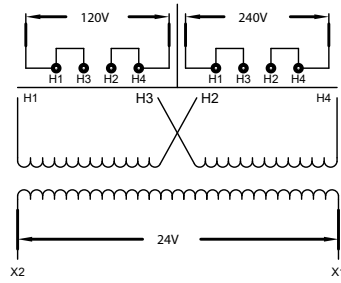
## Notes



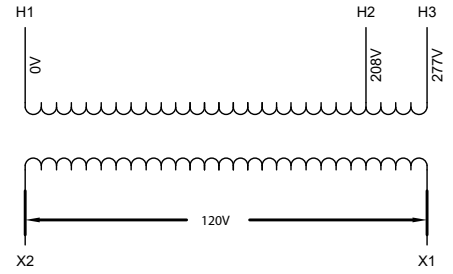
# Wiring Diagrams



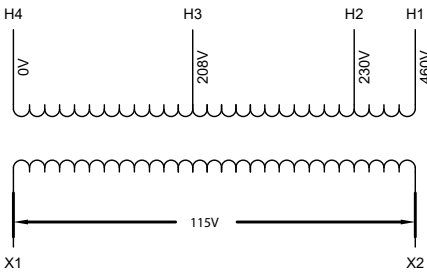
**WIRING DIAGRAM A**



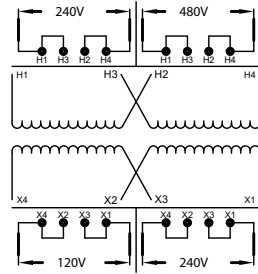
**WIRING DIAGRAM B**



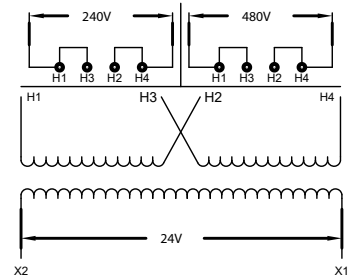
**WIRING DIAGRAM C**



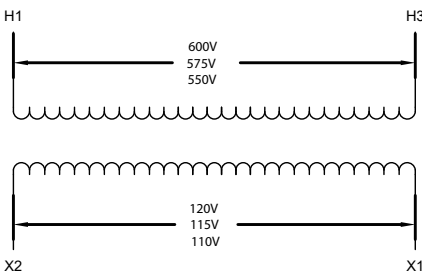
**WIRING DIAGRAM D**



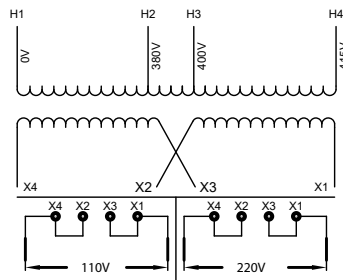
**WIRING DIAGRAM E**



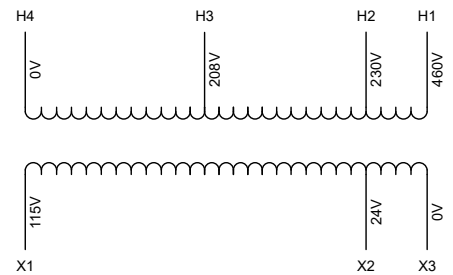
**WIRING DIAGRAM F**



**WIRING DIAGRAM G**



**WIRING DIAGRAM H**



**WIRING DIAGRAM I**



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**MGM Transformers,**  
Los Angeles, CA

(323) 726-0888

Fax: (323) 726-8224

[mgmtransformers.com](http://mgmtransformers.com)

[sales@mgmtransformers.com](mailto:sales@mgmtransformers.com)