

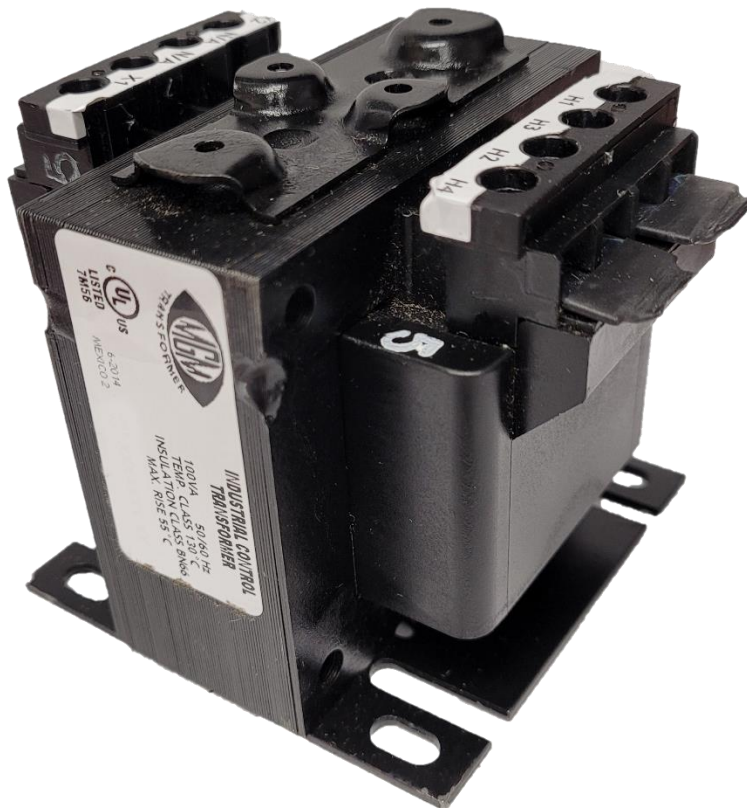
MGM



TRANSFORMER COMPANY



U.S. DEPARTMENT OF
ENERGY
DOE 2016 COMPLIANT



Control Power Transformers



ISO
9001:2015
REGISTERED

Other Products



Dry Substation
(Bulletin 30)



Liquid Substation
(Bulletin 40)



Custom 600V Dry Type
(Bulletin 15)

BULLETIN 25

Control Power Transformers

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

These 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 MGM 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

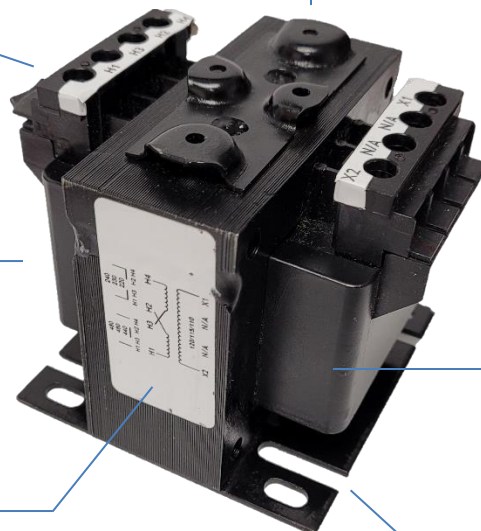
Rugged construction with fully encapsulated windings protect the transformer from harsh environments for a long life.

WIRING DIAGRAM

All MGM 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			
Continuous VA Transformer Nameplate Rating	85% Secondary Voltage	90% Secondary Voltage	95% Secondary Voltage
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

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. As a final check, make sure that 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.

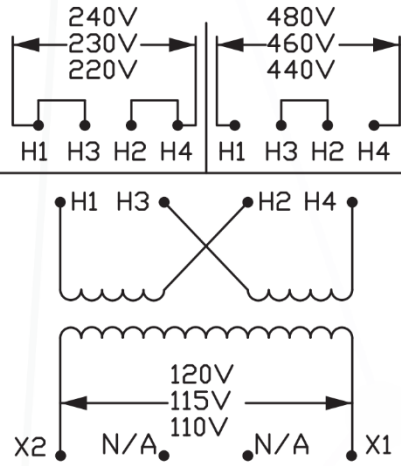
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Refer to the following pages to determine the proper catalog number based on the transformer VA, and primary and secondary voltage requirements.

Wiring Diagrams

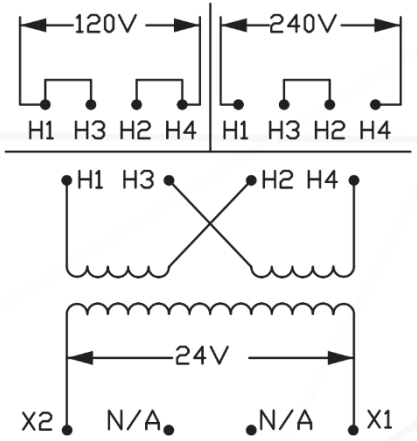
Wiring Diagram A

Primary: 240/230/220 x
480/460/440
Secondary: 120/115/110



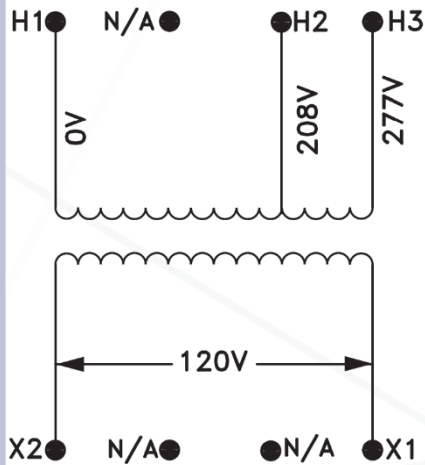
Wiring Diagram B

Primary: 120 x 240
Secondary: 24



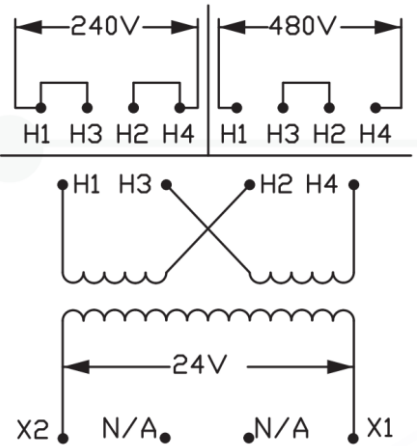
Wiring Diagram C

Primary: 208/277
Secondary: 120



Wiring Diagram D

Primary: 240 x 480
Secondary: 24



Voltage Groups

Aluminum | Primary: 240/230/220 x 480/460/440 | Secondary: 120/115/110 | Wiring Diagram A

Catalog Number	VA	Width (Inches)	Depth (Inches)	Height (Inches)	Mounting Depth	Mounting Width	Mounting Hole Depth	Mounting Hole Width	Shipping Weight (Lbs)
M22585	50	3.00	3.23	2.79	2.00	2.50	0.203	0.406	2.6
M22426	75	3.00	3.73	2.79	2.50	2.50	0.203	0.406	3.5
M22427	100	3.38	4.23	3.10	2.38	2.81	0.203	0.406	4.2
M22428	150	3.75	4.18	3.41	2.88	3.13	0.203	0.406	6.7
M22645	200	4.50	3.96	4.04	2.50	3.75	0.203	0.406	8.5
M22429	250	4.50	4.46	4.04	2.88	3.75	0.203	0.406	10.0
M22646	300	4.50	4.46	4.04	3.25	3.75	0.203	0.406	11.3
M22430	350	4.50	5.19	4.04	3.75	3.75	0.203	0.406	13.6
M22431	500	5.25	5.17	4.66	4.25	4.38	0.313	1.063	19.2
M22432	750	5.25	6.42	4.66	5.38	4.38	0.313	1.063	28.1

Aluminum | Primary: 120 x 240 | Secondary: 24 | Wiring Diagram B

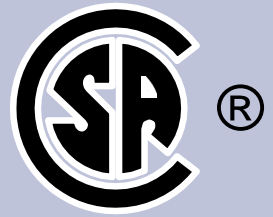
Catalog Number	VA	Width (Inches)	Depth (Inches)	Height (Inches)	Mounting Depth	Mounting Width	Mounting Hole Depth	Mounting Hole Width	Shipping Weight (Lbs)
M23485	50	3.00	3.23	2.79	2.00	2.50	0.203	0.406	2.6
M23486	75	3.00	3.73	2.79	2.50	2.50	0.203	0.406	3.5
M23487	100	3.38	4.23	3.10	2.38	2.81	0.203	0.406	4.2
M23488	150	3.75	4.18	3.41	2.88	3.13	0.203	0.406	6.7
M23489	200	4.50	3.96	4.04	2.50	3.75	0.203	0.406	8.5
M23490	250	4.50	4.46	4.04	2.88	3.75	0.203	0.406	10.0
M24817	300	4.50	4.46	4.04	3.25	3.75	0.203	0.406	11.3
M23491	350	4.50	5.19	4.04	3.75	3.75	0.203	0.406	13.6
M23492	500	5.25	5.17	4.66	4.25	4.38	0.313	1.063	19.2

Aluminum | Primary: 208/277 | Secondary: 120 | Wiring Diagram C

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

Voltage Groups

Aluminum Primary: 240 x 480 Secondary: 24 Wiring Diagram D									
Catalog Number	VA	Width (Inches)	Depth (Inches)	Height (Inches)	Mounting Depth	Mounting Width	Mounting Hole Depth	Mounting Hole Width	Shipping Weight (Lbs)
M23493	50	3.00	3.23	2.79	2.00	2.50	0.203	0.406	2.6
M23494	75	3.00	3.73	2.79	2.50	2.50	0.203	0.406	3.5
M23495	100	3.38	4.23	3.10	2.38	2.81	0.203	0.406	4.2
M23496	150	3.75	4.18	3.41	2.88	3.13	0.203	0.406	6.7
M24818	200	4.50	3.96	4.04	2.50	3.75	0.203	0.406	8.5
M23497	250	4.50	4.46	4.04	2.88	3.75	0.203	0.406	10.0
M24819	300	4.50	4.46	4.04	3.25	3.75	0.203	0.406	11.3
M23498	350	4.50	5.19	4.04	3.75	3.75	0.203	0.406	13.6
M23499	500	5.25	5.17	4.66	4.25	4.38	0.313	1.063	19.2



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