

Types MTE and MTK



CE Marked



Type AP



|            |                                        |                 |
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## Industrial Control Transformers



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## Description

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## Transformers

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## Standards and Certifications

Eaton dry-type distribution transformers are approved, listed, recognized or may comply with the following standards.

## Engineering Standards

| Catalog Product Name                  | UL Standard ① | UL/cUL File Number | UL Listed Control Number | cUL Energy Efficiency File Number | CSA File Number | Insulation System Temp/°C | kVA Single-Phase | kVA Three-Phase | Applicable IEC Standard |
|---------------------------------------|---------------|--------------------|--------------------------|-----------------------------------|-----------------|---------------------------|------------------|-----------------|-------------------------|
| <b>Industrial Control Transformer</b> |               |                    |                          |                                   |                 |                           |                  |                 |                         |
| MTE                                   | 5085          | E46323             | 702X                     | —                                 | —               | 105                       | 0.025–1.5        | N/A             | 61558                   |
| MTK                                   | 5085          | E46323             | 702X                     | —                                 | —               | 180                       | 0.05–5           | N/A             | 61558                   |
| <b>Encapsulated Transformer</b>       |               |                    |                          |                                   |                 |                           |                  |                 |                         |
| AP                                    | 5085          | E10156             | 591H                     | —                                 | —               | 180                       | 3–10             | N/A             | 61558                   |
| AP                                    | 1561          | E78389             | 591H                     | —                                 | —               | 180                       | 15               | N/A             | 61558                   |
| EP                                    | 5085          | E10156             | 591H                     | —                                 | LR60545         | 180                       | 0.05–10          | N/A             | 61558                   |
| EP                                    | 1561          | E78389             | 591H                     | EV157 ②                           | LR60545 ③       | 180                       | 15–50            | N/A             | 61558 ④ / 726 ⑤         |
| EPT                                   | 5085          | E10156             | 591H                     | —                                 | LR60545         | 180                       | N/A              | 3–9             | 61558 ⑥ / 726 ⑦         |
| EPT                                   | 1561          | E78389             | 591H                     | EV157 ⑧                           | LR60545 ⑨       | 180                       | N/A              | 15–75           | 726                     |
| MPC                                   | 1062          | E53449             | 591H                     | —                                 | LR60546         | 180                       | 3–25             | 15–30           | —                       |
| <b>Ventilated Transformer</b>         |               |                    |                          |                                   |                 |                           |                  |                 |                         |
| DS-3                                  | 1561          | E78389             | 591H                     | —                                 | —               | 220                       | 15–167           | N/A             | 60726                   |
| DT-3                                  | 1561          | E78389             | 591H                     | —                                 | —               | 220                       | N/A              | 15–750          | 60726                   |
| KT                                    | 1561          | E78389             | 591H                     | —                                 | —               | 220                       | N/A              | 9–500           | N/A                     |

## Notes

- ① UL 5085 replaces UL 506.
- ② Applies to 25–50 kVA.
- ③ Applies to 25 kVA.
- ④ Applies to 15–25 kVA.
- ⑤ Applies to 37.5 kVA.
- ⑥ Applies to 3 kVA.
- ⑦ Applies to 5–9 kVA.
- ⑧ Applies to 30–75 kVA.
- ⑨ Applies to 30 kVA.

In addition to the above standards, Eaton dry-type distribution transformers are also manufactured in compliance with the applicable standards listed below.

Not all of the following standards apply to every transformer.

**NEC:** National Electrical Code®.

**NEMA ST-1:** Specialty Transformers (C89.1) (control transformers).

**NEMA ST-20:** General-Purpose Transformers.

**NEMA TP-1:** Guide for Determining Energy Efficiency for Distribution Transformers.

**NEMA 250:** Enclosures for Electrical Equipment (1000 volts maximum).

**IEEE C57.12.01:** General Requirements for Dry-Type Distribution and Power Transformers (including those with solid-cast and/or resin-encapsulated windings).

**ANSI C57.12.70:** Terminal Markings and Connections for Distribution and Power Transformers.

**ANSI C57.12.91:** Standard Test Code for Dry-Type Distribution and Power Transformers.

**CSA C22 No. 47-M90:** Air-Cooled Transformers (Dry-Type).

**CSA C9-M1981:** Dry-Type Transformers.

**CSA C22.2 No. 66:** Specialty Transformers.

**CSA 802-94:** Maximum Losses for Distribution, Power and Dry-Type Transformers.

**NEMA TP-2:** Standard Test Method for Measuring the Energy Consumption of Distribution Transformers.

**NEMA TP-3**



## Catalog Number Selection

Industrial Control Transformers, CE Marked Control Transformers—Example: CE0250E2FCE ①

| Type                                                                     |             |               | Transformer Design                                 |  |  | Voltage   |  |  | Modifications                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |
|--------------------------------------------------------------------------|-------------|---------------|----------------------------------------------------|--|--|-----------|--|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| C = Industrial control transformer<br>CE = CE Marked control transformer |             |               | A = MTA<br>C = MTC<br>E = MTE<br>K = MTK<br>P = AP |  |  | Primary   |  |  | Type MTE/MTK<br>CE = CE Marked control transformer<br>FB = Factory-mounted two-pole primary fuse block for rejection type fuses<br>FBN = Factory-mounted two-pole primary fuse block for non-rejection-type fuses<br>Q = Secondary fuse clips for 1/4 x 1-1/4 inch fuses<br>XX = No secondary fuse clips<br>RT = Ring type terminals for connection to fuse block<br>ES = Electrostatic shield<br>FS = Factory-mounted finger-safe terminal shields |  |  |
| VA Rating                                                                |             |               |                                                    |  |  | Secondary |  |  | Type AP<br>B = Bottom mounted<br>S = Side/wall mounted<br>ES = Electrostatic shield<br>CU = Copper windings                                                                                                                                                                                                                                                                                                                                         |  |  |
| 0025 = 25                                                                | 0350 = 350  | Type AP Only: |                                                    |  |  |           |  |  | Type MTA/MTC<br>FB = Factory-mounted three-pole fuse block (two-pole primary rejection type with single-pole secondary non-rejection type)<br>ES = Electrostatic shield<br>L = Lead terminations                                                                                                                                                                                                                                                    |  |  |
| 0050 = 50                                                                | 0500 = 500  | 0003 = 3000   |                                                    |  |  |           |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |
| 0075 = 75                                                                | 0750 = 750  | 0005 = 5000   |                                                    |  |  |           |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |
| 0100 = 100                                                               | 1000 = 1000 | 0007 = 7500   |                                                    |  |  |           |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |
| 0150 = 150                                                               | 1500 = 1500 | 0010 = 10000  |                                                    |  |  |           |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |
| 0200 = 200                                                               | 2000 = 2000 | 0015 = 15000  |                                                    |  |  |           |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |
| 0250 = 250                                                               | 3000 = 3000 |               |                                                    |  |  |           |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |
| 0300 = 300                                                               | 5000 = 5000 |               |                                                    |  |  |           |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |

## Notes

① For Eaton's dry-type transformers catalog number selection, see Volume 2, CA08100003E.

Contact your local Eaton sales office for voltage combinations not shown. Use table for catalog number breakdown only. Do not use to create catalog numbers because all combinations may not be valid.

## Type MTE Transformer



7

## Type MTE

## Product Description

**Note:** The following pages provide listings for most standard transformer ratings and styles. For other ratings or styles not shown, or for special enclosure types (including stainless steel), refer to Eaton.

- Epoxy-encapsulated coils

## Application Description

Transformers provide stepped-down voltages to machine tool control devices, enabling control circuits to be isolated from all power and lighting circuits. This allows the use of grounded or ungrounded circuits that are independent of the power or lighting grounds; thus, greater safety is afforded the operator. The control transformer line is particularly adaptable on applications where compact construction is demanded.

**Note:** The MTG “open core-coil design” has been superseded by the epoxy-encapsulated core-coil design MTE with no change to dimensions or functionality.

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## Description

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## Features, Benefits and Functions

- Epoxy encapsulated
- Laminations of high-quality silicon steel to minimize core losses and optimize performance
- Copper magnet wire for high-quality, efficient operation
- Secondary fuse clips where applicable
- Optional primary fusing
- Molded in terminals
- 50/60 Hz operation
- 130°C insulation system standard
- Performance meets/exceeds requirements of ANSI/NEMA ST-1
- Regulation exceeds ANSI/NEMA requirements for all ratings
- 25–1500 VA ratings
- Molded-in terminals for maximum durability

## Standards and Certifications

- UL listed
- cUL listed
- RoHS compliant



## Industry Standards

All Eaton dry-type distribution and control transformers are built and tested in accordance with applicable NEMA, ANSI and IEEE Standards. All 600 volt class transformers are UL listed unless otherwise noted.

## Catalog Number Selection

Please refer to **Page V7-T7-3**.

**Product Selection**

Additional Product Selection information is available in Volume 2, **CA08100003E**.

**Type MTE**

**Primary: 240 x 480, 230 x 460, 220 x 440 with Jumpers**  
**Secondary: 120/115/110 with Fuse Clips for 13/32 x 1-1/2 Fuses**

| VA   | Wiring Diagram <sup>①</sup> | Weight Lbs (kg) | Style Number          |
|------|-----------------------------|-----------------|-----------------------|
| 25   | 1                           | 1.7 (0.8)       | C0025E2A <sup>②</sup> |
| 50   | 1                           | 2.6 (1.2)       | C0050E2A <sup>②</sup> |
| 75   | 1                           | 3.5 (1.6)       | C0075E2A <sup>②</sup> |
| 100  | 1                           | 4.2 (1.9)       | C0100E2A <sup>②</sup> |
| 150  | 1                           | 6.7 (3.0)       | C0150E2A              |
| 200  | 1                           | 8.5 (3.9)       | C0200E2A              |
| 250  | 1                           | 10.0 (4.5)      | C0250E2A              |
| 300  | 1                           | 11.3 (5.1)      | C0300E2A              |
| 350  | 1                           | 13.6 (6.2)      | C0350E2A              |
| 500  | 1                           | 19.2 (8.7)      | C0500E2A              |
| 750  | 1                           | 28.1 (12.8)     | C0750E2A              |
| 1000 | 1                           | 29.5 (13.4)     | C1000E2A              |
| 1500 | 1                           | 40.0 (18.1)     | C1500E2A              |

**Primary: 240 x 480 with Jumpers**  
**Secondary: 24 with Fuse Clips for 13/32 x 1-1/2 Fuses (through 500 VA)**

| VA  | Wiring Diagram <sup>①</sup> | Weight Lbs (kg) | Style Number          |
|-----|-----------------------------|-----------------|-----------------------|
| 50  | 2                           | 2.7 (1.2)       | C0050E2B <sup>②</sup> |
| 75  | 2                           | 3.5 (1.6)       | C0075E2B <sup>②</sup> |
| 100 | 2                           | 4.2 (1.9)       | C0100E2B <sup>②</sup> |
| 150 | 2                           | 6.7 (3.0)       | C0150E2B              |
| 200 | 2                           | 8.5 (3.9)       | C0200E2B              |
| 250 | 2                           | 10.1 (4.6)      | C0250E2B              |
| 300 | 2                           | 11.4 (5.2)      | C0300E2B              |
| 350 | 2                           | 13.4 (6.1)      | C0350E2B              |
| 500 | 2                           | 17.5 (7.9)      | C0500E2B              |
| 750 | 2                           | 28.1 (12.8)     | C0750E2B              |

**Primary: 120 X 240 with Jumpers**  
**Secondary: 24 with Fuse Clips for 13/32 x 1-1/2 Fuses**

| VA  | Wiring Diagram <sup>①</sup> | Weight Lbs (kg) | Style Number          |
|-----|-----------------------------|-----------------|-----------------------|
| 50  | 3                           | 2.6 (1.2)       | C0050E1B <sup>②</sup> |
| 75  | 3                           | 3.6 (1.6)       | C0075E1B <sup>②</sup> |
| 100 | 3                           | 4.4 (2.0)       | C0100E1B <sup>②</sup> |
| 150 | 3                           | 6.7 (3.0)       | C0150E1B              |
| 200 | 3                           | 8.3 (3.8)       | C0200E1B              |
| 250 | 3                           | 10.1 (4.6)      | C0250E1B              |
| 300 | 3                           | 11.2 (5.1)      | C0300E1B              |
| 350 | 3                           | 13.2 (6.0)      | C0350E1B              |
| 500 | 3                           | 17.5 (7.9)      | C0500E1B              |

**Primary: 208/277**  
**Secondary: 120 with Fuse Clips for 13/32 x 1-1/2 Fuses**

| VA  | Wiring Diagram <sup>①</sup> | Weight Lbs (kg) | Style Number          |
|-----|-----------------------------|-----------------|-----------------------|
| 50  | 4                           | 2.9 (1.3)       | C0050E3A <sup>②</sup> |
| 75  | 4                           | 3.8 (1.7)       | C0075E3A <sup>②</sup> |
| 100 | 4                           | 4.5 (2.0)       | C0100E3A <sup>②</sup> |
| 150 | 4                           | 6.9 (3.1)       | C0150E3A              |
| 200 | 4                           | 8.7 (3.9)       | C0200E3A              |
| 250 | 4                           | 10.2 (4.6)      | C0250E3A              |
| 300 | 4                           | 11.4 (5.2)      | C0300E3A              |
| 350 | 4                           | 13.7 (6.2)      | C0350E3A              |
| 500 | 4                           | 17.2 (7.8)      | C0500E3A              |
| 750 | 4                           | 25.7 (11.7)     | C0750E3A              |

**Notes**

① See **Page V7-T7-11** for wiring diagrams.

② 105°C insulation system.

**Primary: 240 x 480 with Jumpers**  
**Secondary: 120 x 240 with Jumpers,**  
**Secondary Fuse Clips Not Applicable**

| VA  | Wiring Diagram ① | Weight Lbs (kg) | Style Number |
|-----|------------------|-----------------|--------------|
| 50  | 11               | 2.6 (1.2)       | C0050E2CXX ② |
| 75  | 11               | 3.5 (1.6)       | C0075E2CXX ② |
| 100 | 11               | 4.2 (1.9)       | C0100E2CXX ② |
| 150 | 11               | 6.7 (3.1)       | C0150E2CXX   |
| 200 | 11               | 8.5 (3.9)       | C0200E2CXX   |
| 250 | 11               | 10.0 (4.6)      | C0250E2CXX   |
| 300 | 11               | 11.8 (5.4)      | C0300E2CXX   |
| 350 | 11               | 13.6 (6.2)      | C0350E2CXX   |
| 500 | 11               | 17.5 (8.0)      | C0500E2CXX   |
| 750 | 11               | 26.4 (12.0)     | C0750E2CXX   |

**Primary: 550/575/600**  
**Secondary: 110/115/120 with for 13/32 x 1-1/2 Fuses**

| VA  | Wiring Diagram ① | Weight Lbs (kg) | Style Number |
|-----|------------------|-----------------|--------------|
| 50  | 10               | 2.7 (1.2)       | C0050E4C ②   |
| 75  | 10               | 3.6 (1.6)       | C0075E4C ②   |
| 100 | 10               | 4.2 (1.9)       | C0100E4C ②   |
| 150 | 10               | 6.8 (3.1)       | C0150E4C     |
| 200 | 10               | 8.4 (3.8)       | C0200E4C     |
| 250 | 10               | 10.0 (4.6)      | C0250E4C     |
| 300 | 10               | 11.3 (5.1)      | C0300E4C     |
| 350 | 10               | 13.6 (6.2)      | C0350E4C     |
| 500 | 10               | 16.8 (7.6)      | C0500E4C     |
| 750 | 10               | 25.7 (11.7)     | C0750E4C     |

**Primary: 380/400/415**  
**Secondary: 22/23/24 with Fuse Clips for 13/32 x 1-1/2 Fuses**

| VA  | Wiring Diagram ① | Weight Lbs (kg) | Style Number |
|-----|------------------|-----------------|--------------|
| 50  | 13               | 2.5 (1.1)       | C0050E4H ②   |
| 75  | 13               | 3.5 (1.6)       | C0075E4H ②   |
| 100 | 13               | 4.0 (1.8)       | C0100E4H ②   |
| 150 | 13               | 6.5 (3.0)       | C0150E4H     |
| 200 | 13               | 8.2 (3.7)       | C0200E4H     |
| 250 | 13               | 10.0 (4.5)      | C0250E4H     |
| 300 | 13               | 11.0 (5.0)      | C0300E4H     |
| 350 | 13               | 13.6 (6.2)      | C0350E4H     |
| 500 | 13               | 17.7 (8.0)      | C0500E4H     |

**Primary: 550/575/600**  
**Secondary: 22/23/24 with Fuse Clips for 13/32 x 1-1/2 Fuses**

| VA  | Wiring Diagram ① | Weight Lbs (kg) | Style Number |
|-----|------------------|-----------------|--------------|
| 50  | 12               | 2.5 (1.1)       | C0050E4W ②   |
| 75  | 12               | 3.5 (1.6)       | C0075E4W ②   |
| 100 | 12               | 4.0 (1.8)       | C0100E4W ②   |
| 150 | 12               | 6.5 (3.0)       | C0150E4W     |
| 200 | 12               | 8.2 (3.7)       | C0200E4W     |
| 250 | 12               | 10.0 (4.5)      | C0250E4W     |
| 300 | 12               | 11.0 (5.0)      | C0300E4W     |
| 350 | 12               | 13.6 (6.2)      | C0350E4W     |
| 500 | 12               | 17.7 (8.0)      | C0500E4W     |
| 750 | 12               | 28.0 (12.7)     | C0750E4WXX ③ |

**Primary: 230/460/575**  
**Secondary: 115/95 with Fuse Clips for 13/32 x 1-1/2 Fuses**

| VA  | Wiring Diagram ① | Weight Lbs (kg) | Style Number |
|-----|------------------|-----------------|--------------|
| 50  | 5                | 3.5 (1.6)       | C0050E3C ②   |
| 75  | 5                | 4.5 (2.0)       | C0075E3C ②   |
| 100 | 5                | 6.0 (2.7)       | C0100E3C ②   |
| 150 | 5                | 7.7 (3.5)       | C0150E3C     |
| 200 | 5                | 9.0 (4.1)       | C0200E3C     |
| 250 | 5                | 9.7 (4.4)       | C0250E3C     |
| 300 | 5                | 11.7 (5.3)      | C0300E3C     |
| 350 | 5                | 16.5 (7.5)      | C0350E3C     |
| 500 | 5                | 21.5 (9.8)      | C0500E3C     |
| 750 | 5                | 28.0 (12.7)     | C0750E3C     |

**Primary: 380/400/415**  
**Secondary: 110 x 220 with Jumpers;**  
**Fuse Clips Not Applicable**

| VA  | Wiring Diagram ① | Weight Lbs (kg) | Style Number |
|-----|------------------|-----------------|--------------|
| 50  | 6                | 3.0 (1.4)       | C0050E4D ②   |
| 75  | 6                | 4.0 (1.8)       | C0075E4D ②   |
| 100 | 6                | 5.2 (2.4)       | C0100E4D ②   |
| 150 | 6                | 7.0 (3.2)       | C0150E4D     |
| 200 | 6                | 8.7 (3.9)       | C0200E4D     |
| 250 | 6                | 10.2 (4.6)      | C0250E4D     |
| 300 | 6                | 11.0 (5.0)      | C0300E4D     |
| 350 | 6                | 13.0 (5.9)      | C0350E4D     |
| 500 | 6                | 20.0 (9.1)      | C0500E4D     |
| 750 | 6                | 28.0 (12.7)     | C0750E4D     |

#### Notes

- ① See Page V7-T7-11 for wiring diagrams.
- ② 105°C insulation system.
- ③ Secondary fuse clips are not available on this catalog number.

**Primary:** 200/220/440, 208/230/460, 240/480  
**Secondary:** 23/110, 24/115, 25/120 with Fuse Clips for 13/32 x 1-1/2 Fuses

| VA  | Wiring Diagram ① | Weight Lbs (kg) | Style Number |
|-----|------------------|-----------------|--------------|
| 50  | 7                | 3.4 (1.5)       | C0050E5E ②   |
| 75  | 7                | 4.8 (2.2)       | C0075E5E ②   |
| 100 | 7                | 5.9 (2.7)       | C0100E5E ②   |
| 150 | 7                | 7.9 (3.6)       | C0150E5E     |
| 200 | 7                | 10.6 (4.8)      | C0200E5E     |
| 250 | 7                | 13.9 (6.3)      | C0250E5E     |
| 300 | 7                | 15.5 (7.0)      | C0300E5E     |
| 350 | 7                | 16.8 (7.6)      | C0350E5E     |
| 500 | 7                | 23.4 (10.6)     | C0500E5E     |

**Universal Design (MTE Epoxy Encapsulated)**  
**Primary:** 240/416/480/600, 230/400/460/575, 220/380/440/550, 208/500  
**Secondary:** 99/120/130, 95/115/125, 91/110/120, 85/100/110 with Fuse Clips for 13/32 x 1-1/2 Fuses

| VA  | Wiring Diagram ① | Weight Lbs (kg) | Style Number |
|-----|------------------|-----------------|--------------|
| 50  | 8                | 4.0 (1.8)       | C0050E6U ②③  |
| 100 | 8                | 6.6 (3.0)       | C0100E6U ②③  |
| 150 | 8                | 8.8 (4.0)       | C0150E6U ②④  |
| 250 | 8                | 14.7 (6.7)      | C0250E6U ②④  |
| 350 | 8                | 18.6 (8.4)      | C0350E6U ②④  |
| 500 | 8                | 25.6 (11.6)     | C0500E6U ②④  |
| 750 | 8                | 30.5 (13.8)     | C0750E6U ②④  |

#### Transformers with Primary Fuse Blocks

**Primary:** 240 x 480, 230 x 460, 220 x 440 with Jumpers and Two-Pole Primary Fuse Block for Rejection-Type Fuses  
**Secondary:** 120/115/110 with Fuse Clips for 13/32 x 1-1/2 Fuses

| VA   | Wiring Diagram ① | Weight Lbs (kg) | Style Number |
|------|------------------|-----------------|--------------|
| 50   | 1                | 2.8 (1.3)       | C0050E2AFB ② |
| 75   | 1                | 3.7 (1.7)       | C0075E2AFB ② |
| 100  | 1                | 4.4 (2.0)       | C0100E2AFB ② |
| 150  | 1                | 6.9 (3.1)       | C0150E2AFB   |
| 200  | 1                | 8.7 (3.9)       | C0200E2AFB   |
| 250  | 1                | 10.2 (4.6)      | C0250E2AFB   |
| 300  | 1                | 11.5 (5.2)      | C0300E2AFB   |
| 350  | 1                | 13.8 (6.3)      | C0350E2AFB   |
| 500  | 1                | 19.4 (8.8)      | C0500E2AFB   |
| 750  | 1                | 28.3 (12.8)     | C0750E2AFB   |
| 1000 | 1                | 29.7 (13.4)     | C1000E2AFB   |
| 1500 | 1                | 40.2 (18.1)     | C1500E2AFB   |

**Primary:** 240 x 480 with Jumpers and Two-Pole Primary Fuse Block for Rejection-Type Fuses  
**Secondary:** 24 with Fuse Clips for 13/32 x 1-1/2 Fuses

| VA  | Wiring Diagram ① | Weight Lbs (kg) | Style Number |
|-----|------------------|-----------------|--------------|
| 50  | 2                | 2.8 (1.3)       | C0050E2BFB ② |
| 75  | 2                | 3.8 (1.7)       | C0075E2BFB ② |
| 100 | 2                | 4.4 (2.1)       | C0100E2BFB ② |
| 150 | 2                | 6.9 (3.1)       | C0150E2BFB   |
| 200 | 2                | 8.7 (3.9)       | C0200E2BFB   |
| 250 | 2                | 10.3 (4.7)      | C0250E2BFB   |
| 300 | 2                | 11.6 (5.3)      | C0300E2BFB   |
| 350 | 2                | 13.6 (6.2)      | C0350E2BFB   |
| 500 | 2                | 17.7 (8.0)      | C0500E2BFB   |

#### Notes

- ① See Page V7-T7-11 for wiring diagrams.
- ② 105°C insulation system.
- ③ Type MTG open core-coil universal design has been superseded by Type MTE epoxy encapsulated universal design with no changes to form, fit or function.
- ④ Type MTE epoxy encapsulated universal design.

**Primary: 120 x 240 with Jumpers and Two-Pole Primary Fuse Block for Rejection-Type Fuses**  
**Secondary: 24 with Fuse Clips for 13/32 x 1-1/2 Fuses**

| VA  | Wiring Diagram ① | Weight Lbs (kg) | Style Number |
|-----|------------------|-----------------|--------------|
| 50  | 3                | 2.8 (1.3)       | C0050E1BFB ② |
| 75  | 3                | 3.8 (1.7)       | C0075E1BFB ② |
| 100 | 3                | 4.6 (2.1)       | C0100E1BFB ② |
| 150 | 3                | 6.9 (3.1)       | C0150E1BFB   |
| 200 | 3                | 8.5 (3.9)       | C0200E1BFB   |
| 250 | 3                | 10.3 (4.7)      | C0250E1BFB   |
| 300 | 3                | 11.4 (5.2)      | C0300E1BFB   |
| 350 | 3                | 13.4 (6.1)      | C0350E1BFB   |
| 500 | 3                | 17.7 (8.0)      | C0500E1BFB   |

**Primary: 208/277 with Two-Pole Primary Fuse Block for Rejection-Type Fuses**  
**Secondary: 120 with Fuse Clips for 13/32 x 1-1/2 Fuses**

| VA  | Wiring Diagram ① | Weight Lbs (kg) | Style Number |
|-----|------------------|-----------------|--------------|
| 50  | 4                | 3.1 (1.4)       | C0050E3AFB ② |
| 75  | 4                | 4.0 (1.8)       | C0075E3AFB ② |
| 100 | 4                | 4.7 (2.1)       | C0100E3AFB ② |
| 150 | 4                | 7.1 (3.2)       | C0150E3AFB   |
| 200 | 4                | 8.9 (4.0)       | C0200E3AFB   |
| 250 | 4                | 10.4 (4.7)      | C0250E3AFB   |
| 300 | 4                | 11.6 (5.3)      | C0300E3AFB   |
| 350 | 4                | 13.9 (6.3)      | C0350E3AFB   |
| 500 | 4                | 17.4 (7.9)      | C0500E3AFB   |

**Primary: 550/575/600 with Two-Pole Primary Fuse Block for Rejection-Type Fuses**  
**Secondary: 110/115/120 with Fuse Clips for 13/32 x 1-1/2 Fuses**

| VA  | Wiring Diagram ① | Weight Lbs (kg) | Style Number |
|-----|------------------|-----------------|--------------|
| 50  | 10               | 2.9 (1.3)       | C0050E4CFB ② |
| 75  | 10               | 3.8 (1.7)       | C0075E4CFB ② |
| 100 | 10               | 4.4 (2.0)       | C0100E4CFB ② |
| 150 | 10               | 7.0 (3.2)       | C0150E4CFB   |
| 200 | 10               | 8.6 (3.9)       | C0200E4CFB   |
| 250 | 10               | 10.2 (4.6)      | C0250E4CFB   |
| 300 | 10               | 11.5 (5.2)      | C0300E4CFB   |
| 350 | 10               | 13.8 (6.3)      | C0350E4CFB   |
| 500 | 10               | 17.0 (7.7)      | C0500E4CFB   |
| 750 | 10               | 25.9 (11.8)     | C0750E4CFB   |

**Primary: 380/400/415 with Two-Pole Primary Fuse Block for Rejection-Type Fuses**  
**Secondary: 22/23/24 with Fuse Clips for 13/32 x 1-1/2 Fuses**

| VA  | Wiring Diagram ① | Weight Lbs (kg) | Style Number |
|-----|------------------|-----------------|--------------|
| 50  | 13               | 2.6 (1.2)       | C0050E4HFB ② |
| 75  | 13               | 3.7 (1.7)       | C0075E4HFB ② |
| 100 | 13               | 4.2 (1.9)       | C0100E4HFB ② |
| 150 | 13               | 6.7 (3.0)       | C0150E4HFB   |
| 200 | 13               | 8.4 (3.8)       | C0200E4HFB   |
| 250 | 13               | 10.2 (4.6)      | C0250E4HFB   |

**Primary: 550/575/600 with Two-Pole Primary Fuse Block for Rejection-Type Fuses**  
**Secondary: 22/23/24 with Fuse Clips for 13/32 x 11/2 Fuses**

| VA  | Wiring Diagram ① | Weight Lbs (kg) | Style Number |
|-----|------------------|-----------------|--------------|
| 50  | 12               | 2.7 (1.2)       | C0050E4WFB ② |
| 75  | 12               | 3.7 (1.7)       | C0075E4WFB ② |
| 100 | 12               | 4.2 (1.9)       | C0100E4WFB ② |
| 150 | 12               | 6.7 (3.0)       | C0150E4WFB   |
| 200 | 12               | 8.4 (3.8)       | C0200E4WFB   |
| 250 | 12               | 10.2 (4.6)      | C0250E4WFB   |

**Primary: 230/460/575 with Two-Pole Primary Fuse Block for Rejection-Type Fuses**  
**Secondary: 115/95 with Fuse Clips for 13/32 x 1-1/2 Fuses**

| VA  | Wiring Diagram ① | Weight Lbs (kg) | Style Number |
|-----|------------------|-----------------|--------------|
| 50  | 5                | 3.7 (1.7)       | C0050E3CFB ② |
| 75  | 5                | 4.7 (2.1)       | C0075E3CFB ② |
| 100 | 5                | 6.2 (2.8)       | C0100E3CFB ② |
| 150 | 5                | 7.9 (3.6)       | C0150E3CFB   |
| 200 | 5                | 9.2 (4.2)       | C0200E3CFB   |
| 250 | 5                | 9.9 (4.5)       | C0250E3CFB   |
| 300 | 5                | 11.9 (5.4)      | C0300E3CFB   |
| 350 | 5                | 16.7 (7.6)      | C0350E3CFB   |
| 500 | 5                | 21.7 (9.9)      | C0500E3CFB   |

#### Notes

① See Page V7-T7-11 for wiring diagrams.

② 105°C insulation system.



**Primary: 380/400/415 with Two-Pole  
Primary Fuse Block for Rejection-Type Fuses  
Secondary: 110 x 220 with Jumpers;  
Fuse Clips Not Available**

| VA  | Wiring<br>Diagram <sup>①</sup> | Weight<br>Lbs (kg) | Style<br>Number         |
|-----|--------------------------------|--------------------|-------------------------|
| 50  | 6                              | 3.2 (1.5)          | C0050E4DFB <sup>②</sup> |
| 75  | 6                              | 4.2 (1.9)          | C0075E4DFB <sup>②</sup> |
| 100 | 6                              | 5.4 (2.5)          | C0100E4DFB <sup>②</sup> |
| 150 | 6                              | 7.2 (3.3)          | C0150E4DFB              |
| 200 | 6                              | 8.9 (4.0)          | C0200E4DFB              |
| 250 | 6                              | 10.4 (4.7)         | C0250E4DFB              |
| 300 | 6                              | 11.2 (5.1)         | C0300E4DFB              |
| 350 | 6                              | 13.2 (6.0)         | C0350E4DFB              |
| 500 | 6                              | 20.2 (9.2)         | C0500E4DFB              |

**Primary: 200/220/440, 208/230/460, 240/480 with  
Two-Pole Primary Fuse Block for Rejection-Type Fuses  
Secondary: 23/110, 24/115, 25/120 with Fuse Clips  
for 13/32 x 1-1/2 Fuses**

| VA  | Wiring<br>Diagram <sup>①</sup> | Weight<br>Lbs (kg) | Style<br>Number         |
|-----|--------------------------------|--------------------|-------------------------|
| 50  | 7                              | 3.6 (1.6)          | C0050E5EFB <sup>②</sup> |
| 75  | 7                              | 5.0 (2.3)          | C0075E5EFB <sup>②</sup> |
| 100 | 7                              | 6.1 (2.8)          | C0100E5EFB <sup>②</sup> |
| 150 | 7                              | 8.1 (3.7)          | C0150E5EFB              |
| 200 | 7                              | 10.8 (4.9)         | C0200E5EFB              |
| 250 | 7                              | 14.1 (6.4)         | C0250E5EFB              |
| 300 | 7                              | 15.7 (7.1)         | C0300E5EFB              |
| 350 | 7                              | 17.0 (7.7)         | C0350E5EFB              |
| 500 | 7                              | 23.6 (10.7)        | C0500E5EFB              |

**Universal Design (MTE Epoxy Encapsulated)  
Primary: 240/416/480/600, 230/400/460/575,  
220/380/440/550, 208/500 with Two-Pole  
Primary Fuse Block for Rejection-Type Fuses  
Secondary: 99/120/130, 95/115/125, 91/110/120,  
85/100/110 with Fuse Clips for 13/32 x 1-1/2 Fuses**

| VA  | Wiring<br>Diagram <sup>①</sup> | Weight<br>Lbs (kg) | Style<br>Number          |
|-----|--------------------------------|--------------------|--------------------------|
| 50  | 8                              | 4.2 (1.9)          | C0050E6UFB <sup>②③</sup> |
| 100 | 8                              | 6.8 (3.1)          | C0100E6UFB <sup>②③</sup> |
| 150 | 8                              | 9.0 (4.1)          | C0150E6UFB <sup>②④</sup> |
| 250 | 8                              | 14.9 (6.8)         | C0250E6UFB <sup>②④</sup> |
| 350 | 8                              | 18.8 (8.5)         | C0350E6UFB <sup>②④</sup> |
| 500 | 8                              | 25.8 (11.7)        | C0500E6UFB <sup>②④</sup> |

#### Notes

- ① See Page V7-T7-11 for wiring diagrams.
- ② 105°C insulation system.
- ③ Type MTG open core-coil universal design has been superseded by Type MTE epoxy encapsulated universal design with no changes to form, fit or function.
- ④ Type MTE epoxy encapsulated universal design.

## Accessories

### Primary Fuse Kit

The primary fuse kit includes a two-pole class CC fuse block, instructions, and all associated mounting and wiring hardware. Fuses are not included. When installed, the primary fuse kit will add a maximum of 11/16 inch to the transformer depth and 1-15/16 inches to the transformer height.

### Primary Fuse Kit

| Description      | Catalog Number |
|------------------|----------------|
| Primary fuse kit | PFK1           |

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### Finger-Safe Terminal Covers (Optional)

- Fits CE Marked designs 50–750 VA
- Fits MTE designs 0.25–750 VA

### Finger-Safe Terminal Covers

| Description                                                                                        | Catalog Number |
|----------------------------------------------------------------------------------------------------|----------------|
| <b>FSK4</b><br>   | <b>FSK4</b>    |
| Four terminal Series 2 transformers only                                                           | <b>FSK4S2</b>  |
| <b>FSK6</b><br> | <b>FSK6</b>    |
| Six terminal transformers                                                                          |                |

### Finger-Safe Primary Fuse Block Covers

- Fits two-pole primary fuse blocks on MTE designs

### Finger-Safe Primary Fuse Block Covers

| Description                                                                                         | Catalog Number |
|-----------------------------------------------------------------------------------------------------|----------------|
| <b>FSKFB</b><br> | <b>FSKFB</b>   |
| Primary fuse block covers                                                                           |                |

### Secondary Fuse Clip Cover

### Secondary Fuse Clip Cover

| Description                     | Catalog Number |
|---------------------------------|----------------|
| Fits 500 VA and smaller models  | <b>SFCS</b>    |
| Fits models greater than 500 VA | <b>SFCL</b>    |

## Technical Data and Specifications

### Insulation System and Temperature Rise

Industry standards classify insulation systems and rise as shown below:

### Insulation System Classification

| Ambient | + Winding Rise | + Hot Spot | = Temp. Class |
|---------|----------------|------------|---------------|
| 40°C    | 55°C           | 10°C       | 105°C         |
| 40°C    | 80°C           | 30°C       | 150°C         |
| 25°C    | 135°C          | 20°C       | 180°C         |
| 40°C    | 115°C          | 30°C       | 185°C         |
| 40°C    | 150°C          | 30°C       | 220°C         |

The design life of transformers having different insulation systems is the same—the lower-temperature systems are designed for the same life as the higher-temperature systems.

### Series-Multiple Windings

Series-multiple windings consist of two similar coils in each winding that can be connected in series or parallel (multiple). Transformers with series-multiple windings are designated with an "x" or "/" between the voltage ratings, such as voltages of "120/240" or "240 x 480." If the series-multiple winding is designated by an "x," the winding can be connected only for a series or parallel. With the "/" designation, a mid-point also becomes available in addition to the series or parallel connection. As an example, a 120 x 240 winding can be connected for either 120 (parallel) or 240 (series), but a 120/240 winding can be connected for 120 (parallel), 240 (series) or 240 with a 120 mid-point.

For additional information, please refer to Volume 2, **CA08100003E**.

## Wiring Diagrams

Diagram 1

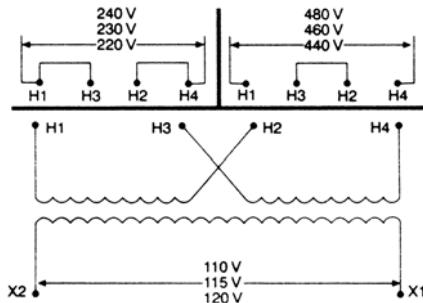


Diagram 2

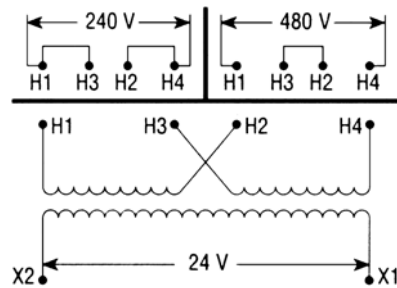


Diagram 3

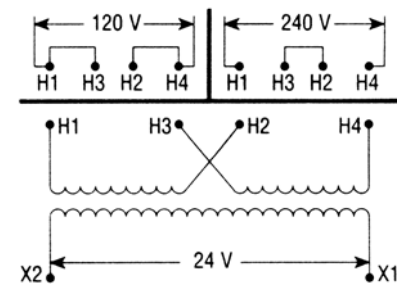


Diagram 4

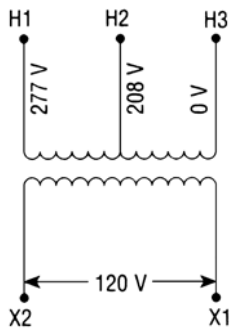


Diagram 5

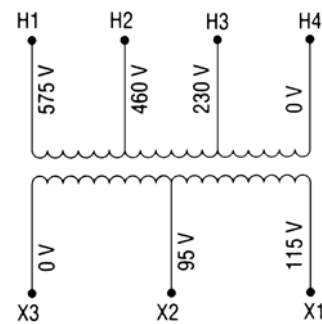


Diagram 6

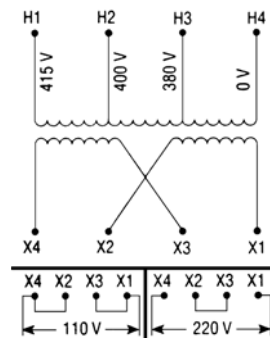


Diagram 7

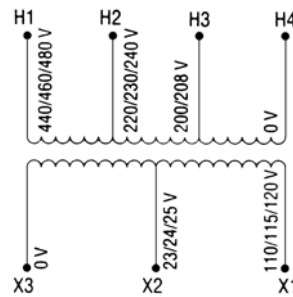


Diagram 8

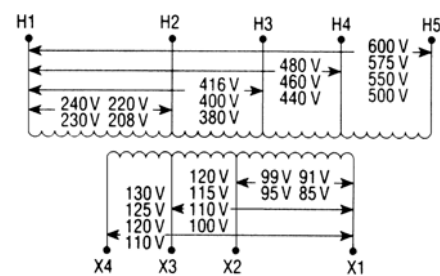


Diagram 9

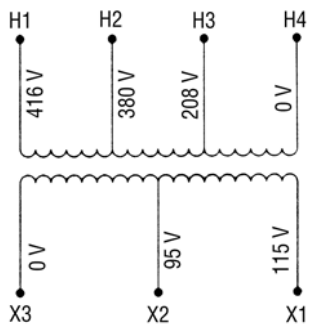


Diagram 10

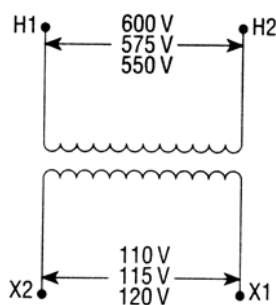


Diagram 11

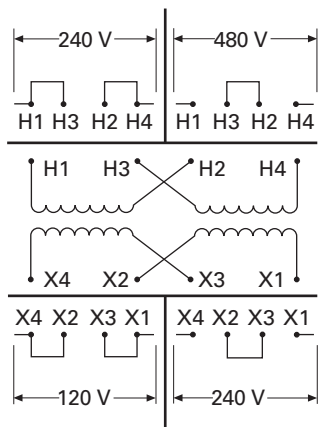


Diagram 12

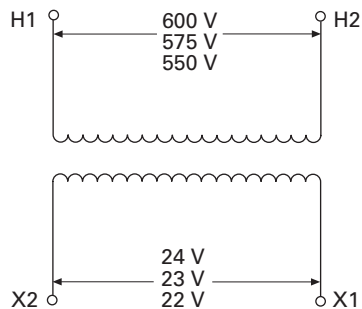


Diagram 13

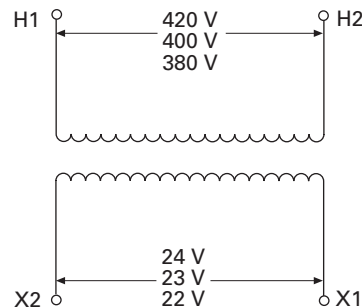


Diagram 14

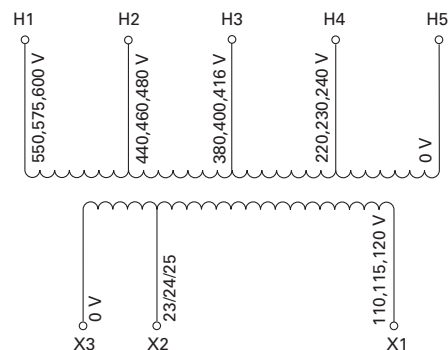


Diagram 15

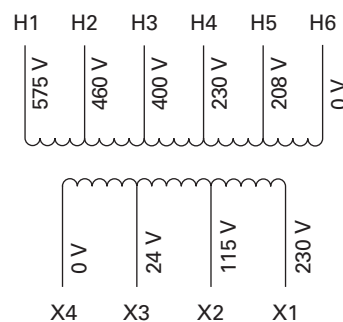
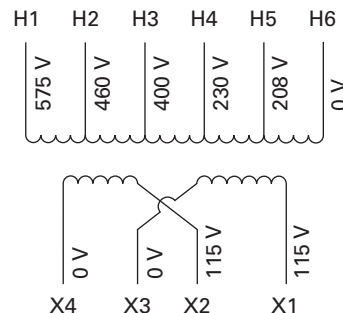


Diagram 16



Type MTK Transformer



Contents

| Description                             | Page     |
|-----------------------------------------|----------|
| Type MTE .....                          | V7-T7-4  |
| Type MTK                                |          |
| Product Selection .....                 | V7-T7-14 |
| Technical Data and Specifications ..... | V7-T7-15 |
| Wiring Diagrams .....                   | V7-T7-15 |
| CE Marked .....                         | V7-T7-18 |
| Type AP .....                           | V7-T7-25 |

Type MTK

Product Description

**Note:** The following pages provide listings for most standard transformer ratings and styles. For other ratings or styles not shown, or for special enclosure types (including stainless steel), refer to Eaton.

- Epoxy resin-impregnated coil
- Economical solution for high inrush applications

Application Description

Transformers provide stepped-down voltages to machine tool control devices, enabling control circuits to be isolated from all power and lighting circuits. This allows the use of grounded or ungrounded circuits that are independent of the power or lighting grounds; thus, greater safety is afforded the operator. The control transformer line is particularly adaptable on applications where compact construction is demanded.

Features, Benefits and Functions

- Epoxy resin impregnated coil design
- Copper magnet wire for high-quality, efficient operation
- 50/60 Hz operation
- 180°C insulation system
- Performance meets/exceeds requirements of ANSI/NEMA ST-1
- Regulation exceeds ANSI/NEMA requirements for all ratings
- 500–5000 VA ratings

Standards and Certifications

- UL listed
- cUL listed
- RoHS compliant



Industry Standards

All Eaton dry-type distribution and control transformers are built and tested in accordance with applicable NEMA, ANSI and IEEE Standards. All 600 volt class transformers are UL listed unless otherwise noted.

Catalog Number Selection

Please refer to **Page V7-T7-3**.

**Product Selection**

Additional Product Selection information is available in Volume 2, **CA08100003E**.

**Type MTK**

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

| VA   | Wiring Diagram ① | Weight Lbs (kg) | Style Number |
|------|------------------|-----------------|--------------|
| 500  | 1                | 13.0 (5.9)      | C0500K2A     |
| 750  | 1                | 19.5 (8.9)      | C0750K2A     |
| 1000 | 1                | 29.8 (13.6)     | C1000K2A     |
| 1500 | 1                | 30.0 (13.6)     | C1500K2A     |
| 2000 | 1                | 38.0 (17.3)     | C2000K2A     |
| 3000 | 1                | 53.0 (24.1)     | C3000K2A     |
| 5000 | 1                | 89.0 (40.5)     | C5000K2A     |

**Primary: 208/277 Secondary: 120**

| VA   | Wiring Diagram ① | Weight Lbs (kg) | Style Number |
|------|------------------|-----------------|--------------|
| 1000 | 4                | 29.0 (13.1)     | C1000K3A     |
| 1500 | 4                | 33.0 (15.0)     | C1500K3A     |
| 2000 | 4                | 43.0 (19.5)     | C2000K3A     |
| 3000 | 4                | 64.0 (29.0)     | C3000K3A     |
| 5000 | 4                | 102.0 (46.3)    | C5000K3A     |

**Primary: 230/460/575 Secondary: 115/95**

| VA   | Wiring Diagram ① | Weight Lbs (kg) | Style Number |
|------|------------------|-----------------|--------------|
| 1000 | 5                | 29.2 (13.3)     | C1000K3C     |
| 1500 | 5                | 33.5 (15.2)     | C1500K3C     |
| 2000 | 5                | 42.5 (19.3)     | C2000K3C     |
| 3000 | 5                | 63.7 (29.0)     | C3000K3C     |
| 5000 | 5                | 102.0 (46.4)    | C5000K3C     |

**Primary: 208/380/416 Secondary: 115/95**

| VA   | Wiring Diagram ① | Weight Lbs (kg) | Style Number |
|------|------------------|-----------------|--------------|
| 1000 | 9                | 29.0 (13.1)     | C1000K3D     |
| 1500 | 9                | 43.0 (19.5)     | C1500K3D     |
| 2000 | 9                | 55.0 (25.0)     | C2000K3D     |
| 3000 | 9                | 74.0 (33.5)     | C3000K3D     |
| 5000 | 9                | 108.0 (49.0)    | C5000K3D     |

**Primary: 550/575/600 Secondary: 110/115/120**

| VA   | Wiring Diagram ① | Weight Lbs (kg) | Style Number |
|------|------------------|-----------------|--------------|
| 1000 | 10               | 29.0 (13.1)     | C1000K4C     |
| 1500 | 10               | 33.0 (15.0)     | C1500K4C     |
| 2000 | 10               | 43.0 (19.5)     | C2000K4C     |
| 3000 | 10               | 64.0 (29.0)     | C3000K4C     |
| 5000 | 10               | 102.0 (46.3)    | C5000K4C     |

**Primary: 380/400/415 Secondary: 110 x 220**

| VA   | Wiring Diagram ① | Weight Lbs (kg) | Style Number |
|------|------------------|-----------------|--------------|
| 1000 | 6                | 28.0 (12.7)     | C1000K4D     |
| 1500 | 6                | 33.0 (15.0)     | C1500K4D     |
| 2000 | 6                | 43.0 (19.5)     | C2000K4D     |
| 3000 | 6                | 64.0 (29.0)     | C3000K4D     |
| 5000 | 6                | 102.0 (46.3)    | C5000K4D     |

**Primary: 240 x 480 with Jumpers**  
**Secondary: 120 x 240 with Jumpers,**  
**Secondary Fuse Clips Not Applicable**

| VA   | Wiring Diagram ① | Weight Lbs (kg) | Style Number |
|------|------------------|-----------------|--------------|
| 1000 | 11               | 26.4 (12.0)     | C1000K2CXX   |
| 1500 | 11               | 31.0 (14.1)     | C1500K2CXX   |
| 2000 | 11               | 40.0 (18.2)     | C2000K2CXX   |
| 3000 | 11               | 56.0 (25.5)     | C3000K2CXX   |
| 5000 | 11               | 85.5 (28.9)     | C5000K2CXX   |

**Primary: 120 x 240 with Jumpers Secondary: 24**

| VA   | Wiring Diagram ① | Weight Lbs (kg) | Style Number |
|------|------------------|-----------------|--------------|
| 750  | 3                | 19.0 (8.6)      | C0750K1B     |
| 1000 | 3                | 26.4 (12.0)     | C1000K1B     |

**Primary: 240/416/480/600, 230/400/460/575,**  
**220/380/440/550, 208/500**  
**Secondary: 99/120/130, 95/115/125, 91/110/120, 85/100/110**

| VA   | Wiring Diagram ① | Weight Lbs (kg) | Style Number |
|------|------------------|-----------------|--------------|
| 1000 | 8                | 26.5 (12.0)     | C1000K6U     |
| 1500 | 8                | 38.5 (17.5)     | C1500K6U     |
| 2000 | 8                | 52.0 (23.6)     | C2000K6U     |
| 3000 | 8                | 68.0 (30.9)     | C3000K6U     |
| 5000 | 8                | 105.0 (47.7)    | C5000K6U     |

**Note**

① See **Page V7-T7-15** for wiring diagrams.

## Technical Data and Specifications

### Insulation System and Temperature Rise

Industry standards classify insulation systems and rise as shown below:

### Insulation System Classification

| Ambient | + Winding Rise | + Hot Spot | = Temp. Class |
|---------|----------------|------------|---------------|
| 40°C    | 55°C           | 10°C       | 105°C         |
| 40°C    | 80°C           | 30°C       | 150°C         |
| 25°C    | 135°C          | 20°C       | 180°C         |
| 40°C    | 115°C          | 30°C       | 185°C         |
| 40°C    | 150°C          | 30°C       | 220°C         |

The design life of transformers having different insulation systems is the same—the lower-temperature systems are designed for the same life as the higher-temperature systems.

### Series-Multiple Windings

Series-multiple windings consist of two similar coils in each winding that can be connected in series or parallel (multiple). Transformers with series-multiple windings are designated with an "x" or "/" between the voltage ratings, such as voltages of "120/240" or "240 x 480." If the series-multiple winding is designated by an "x," the winding can be connected only for a series or parallel. With the "/" designation, a mid-point also becomes available in addition to the series or parallel connection. As an example, a 120 x 240 winding can be connected for either 120 (parallel) or 240 (series), but a 120/240 winding can be connected for 120 (parallel), 240 (series) or 240 with a 120 mid-point.

For additional information, please refer to Volume 2, CA08100003E.

## Wiring Diagrams

Diagram 1

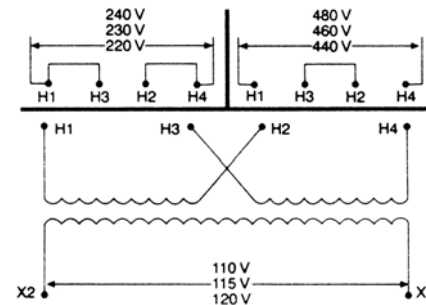


Diagram 2

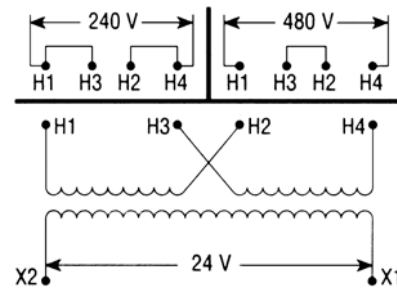


Diagram 3

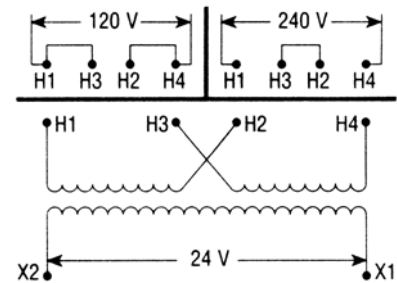
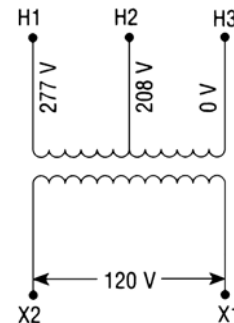


Diagram 4



# 7.1

## Industrial Control Transformers

### Transformers

7

Diagram 5

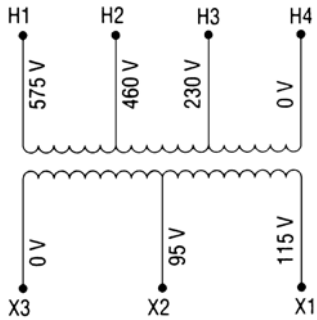


Diagram 6

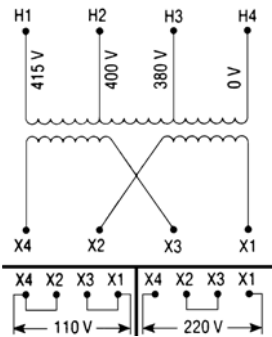


Diagram 7

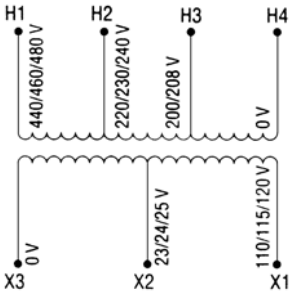


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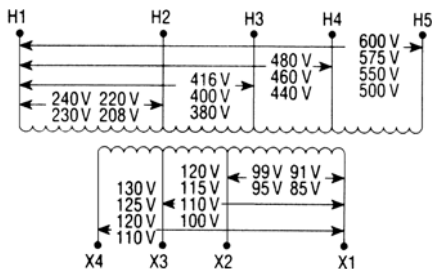


Diagram 9

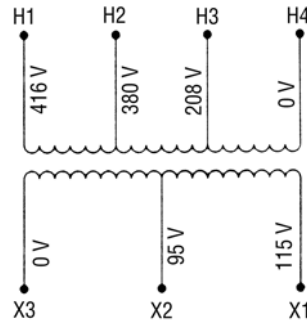


Diagram 10

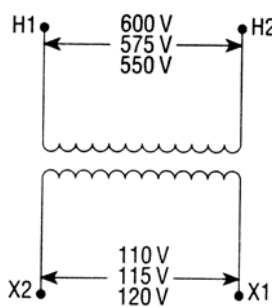


Diagram 11

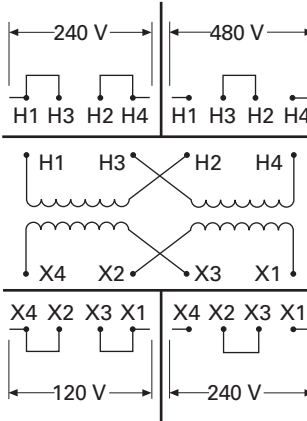
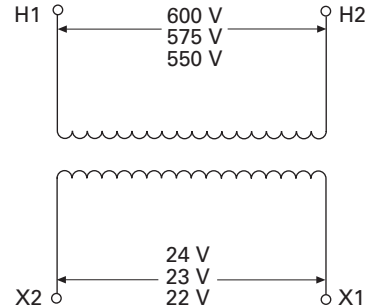
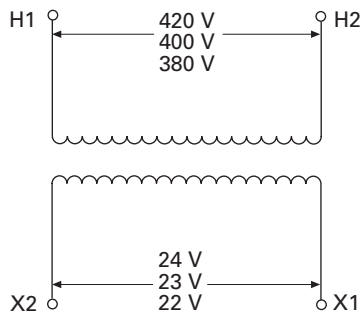


Diagram 12

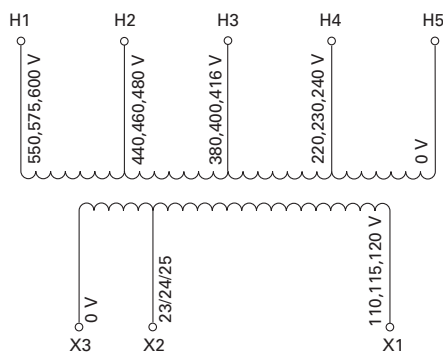




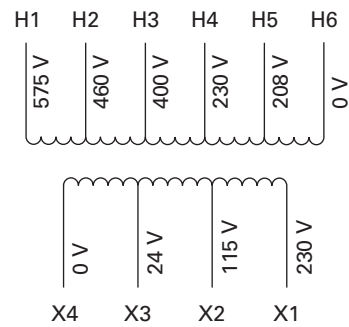
**Diagram 13**



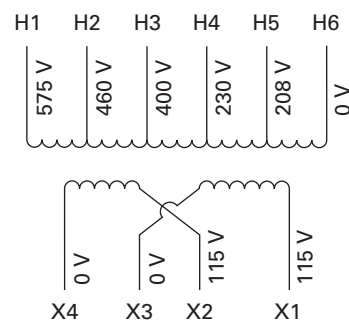
**Diagram 14**



**Diagram 15**



**Diagram 16**



Type MTE CE-Marked CPT



## Contents

| Description                             | Page     |
|-----------------------------------------|----------|
| Type MTE .....                          | V7-T7-4  |
| Type MTK .....                          | V7-T7-13 |
| CE Marked                               |          |
| Product Selection .....                 | V7-T7-19 |
| Accessories .....                       | V7-T7-21 |
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| Type AP .....                           | V7-T7-25 |

## CE Marked

### Product Description

**Note:** The following pages provide listings for most standard transformer ratings and styles. For other ratings or styles not shown, or for special enclosure types (including stainless steel), refer to Eaton.

### Application Description

Transformers provide stepped-down voltages to machine tool control devices, enabling control circuits to be isolated from all power and lighting circuits. This allows the use of grounded or ungrounded circuits that are independent of the power or lighting grounds; thus, greater safety is afforded the operator. The control transformer line is particularly adaptable on applications where compact construction is demanded.

### Features, Benefits and Functions

#### Type MTE

- Epoxy encapsulated coil design
- Copper magnet wire for high-quality, efficient operation
- Laminations of high-quality silicon steel to minimize core losses and optimize performance
- Molded-in terminals
- 50/60 Hz operation
- 130°C insulation system standard
- Performance meets/exceeds requirements of ANSI/NEMA ST-1
- Regulation exceeds ANSI/NEMA requirements for all ratings
- Non-short circuit-proof transformer, isolation type

#### Type MTK

- Epoxy resin-impregnated coil design
- Copper magnet wire for high-quality, efficient operation
- 50/60 Hz operation
- 180°C insulation system
- Performance meets/exceeds requirements of ANSI/NEMA ST-1
- Regulation exceeds ANSI/NEMA requirements for all ratings
- 500–5000 VA ratings

### Standards and Certifications

- UL listed
- cUL listed
- CE Marked units comply with IEC EN-61558-2
- RoHS compliant



### Industry Standards

All Eaton dry-type distribution and control transformers are built and tested in accordance with applicable NEMA, ANSI and IEEE Standards. All 600 volt class transformers are UL listed unless otherwise noted.

### Catalog Number Selection

Please refer to  
**Page V7-T7-3.**

**Product Selection**

Additional Product Selection information is available in Volume 2, **CA08100003E**.

**Type MTE CE Marked IP00**

**Primary: 240 x 480, 230 x 460, 220 x 440 with Jumpers**  
**Secondary: 120/115/110**

| VA  | Wiring Diagram ① | Weight Lbs (kg) | Style Number  |
|-----|------------------|-----------------|---------------|
| 50  | 1                | 3.5 (1.6)       | CE0050E2ACE ② |
| 75  | 1                | 4.8 (2.2)       | CE0075E2ACE ② |
| 100 | 1                | 5.9 (2.7)       | CE0100E2ACE ② |
| 150 | 1                | 8.5 (3.9)       | CE0150E2ACE   |
| 200 | 1                | 10.6 (4.8)      | CE0200E2ACE   |
| 250 | 1                | 11.3 (5.1)      | CE0250E2ACE   |
| 300 | 1                | 13.2 (6.0)      | CE0300E2ACE   |
| 350 | 1                | 14.9 (6.8)      | CE0350E2ACE   |
| 500 | 1                | 21.0 (9.5)      | CE0500E2ACE   |
| 750 | 1                | 29.8 (13.5)     | CE0750E2ACE   |

**Primary: 550/575/600**  
**Secondary: 110/115/1204**

| VA  | Wiring Diagram ① | Weight Lbs (kg) | Style Number  |
|-----|------------------|-----------------|---------------|
| 50  | 10               | 3.5 (1.6)       | CE0050E4CCE ② |
| 75  | 10               | 4.8 (2.2)       | CE0075E4CCE ② |
| 100 | 10               | 5.9 (2.7)       | CE0100E4CCE ② |
| 150 | 10               | 8.5 (3.9)       | CE0150E4CCE   |
| 200 | 10               | 10.6 (4.8)      | CE0200E4CCE   |
| 250 | 10               | 11.3 (5.1)      | CE0250E4CCE   |
| 300 | 10               | 13.2 (6.0)      | CE0300E4CCE   |
| 350 | 10               | 14.9 (6.8)      | CE0350E4CCE   |
| 500 | 10               | 21.0 (9.5)      | CE0500E4CCE   |
| 750 | 10               | 29.8 (13.5)     | CE0750E4CCE   |

**Primary: 240 x 480 with Jumpers**  
**Secondary: 24**

| VA  | Wiring Diagram ① | Weight Lbs (kg) | Style Number  |
|-----|------------------|-----------------|---------------|
| 50  | 2                | 3.4 (1.5)       | CE0050E2BCE ② |
| 75  | 2                | 4.2 (1.9)       | CE0075E2BCE ② |
| 100 | 2                | 5.9 (2.7)       | CE0100E2BCE ② |
| 150 | 2                | 8.5 (3.9)       | CE0150E2BCE   |
| 200 | 2                | 10.6 (4.5)      | CE0200E2BCE   |
| 250 | 2                | 11.3 (5.1)      | CE0250E2BCE   |
| 300 | 2                | 13.2 (6.0)      | CE0300E2BCE   |
| 350 | 2                | 14.9 (6.8)      | CE0350E2BCE   |
| 500 | 2                | 19.2 (8.7)      | CE0500E2BCE   |
| 750 | 2                | 28.1 (12.8)     | CE0750E2BCE   |

**Primary: 380/400/415**  
**Secondary: 110 x 220 with Jumpers**

| VA  | Wiring Diagram ① | Weight Lbs (kg) | Style Number  |
|-----|------------------|-----------------|---------------|
| 50  | 6                | 3.5 (1.6)       | CE0050E4DCE ② |
| 75  | 6                | 4.8 (2.2)       | CE0075E4DCE ② |
| 100 | 6                | 5.9 (2.7)       | CE0100E4DCE ② |
| 150 | 6                | 8.5 (3.9)       | CE0150E4DCE   |
| 200 | 6                | 10.6 (4.8)      | CE0200E4DCE   |
| 250 | 6                | 11.3 (5.1)      | CE0250E4DCE   |
| 300 | 6                | 13.2 (6.0)      | CE0300E4DCE   |
| 350 | 6                | 15.2 (6.9)      | CE0350E4DCE   |
| 500 | 6                | 21.0 (9.5)      | CE0500E4DCE   |
| 750 | 6                | 29.8 (13.5)     | CE0750E4DCE   |

**Primary: 120 x 240 with Jumpers**  
**Secondary: 24**

| VA  | Wiring Diagram ① | Weight Lbs (kg) | Style Number  |
|-----|------------------|-----------------|---------------|
| 50  | 3                | 3.4 (1.5)       | CE0050E1BCE ② |
| 75  | 3                | 4.2 (1.9)       | CE0075E1BCE ② |
| 100 | 3                | 5.9 (2.7)       | CE0100E1BCE ② |
| 150 | 3                | 8.5 (3.9)       | CE0150E1BCE   |
| 200 | 3                | 10.6 (4.5)      | CE0200E1BCE   |
| 250 | 3                | 11.3 (5.1)      | CE0250E1BCE   |
| 300 | 3                | 13.2 (6.0)      | CE0300E1BCE   |
| 350 | 3                | 14.9 (6.8)      | CE0350E1BCE   |
| 500 | 3                | 19.2 (8.7)      | CE0500E1BCE   |
| 750 | 3                | 29.8 (13.5)     | CE0750E1BCE   |

**Primary: 200/220/440, 208/230/460, 240/480**  
**Secondary: 23/110, 24/115, 25/120**

| VA  | Wiring Diagram ① | Weight Lbs (kg) | Style Number  |
|-----|------------------|-----------------|---------------|
| 50  | 7                | 4.2 (1.9)       | CE0050E5ECE ② |
| 75  | 7                | 5.9 (2.7)       | CE0075E5ECE ② |
| 100 | 7                | 7.9 (3.6)       | CE0100E5ECE ② |
| 150 | 7                | 10.0 (4.5)      | CE0150E5ECE   |
| 200 | 7                | 12.8 (5.8)      | CE0200E5ECE   |
| 250 | 7                | 15.2 (6.9)      | CE0250E5ECE   |
| 300 | 7                | 16.8 (7.6)      | CE0300E5ECE   |
| 350 | 7                | 19.2 (8.7)      | CE0350E5ECE   |
| 500 | 7                | 27.0 (12.3)     | CE0500E5ECE   |

**Notes**

① See **Page V7-T7-22** for wiring diagrams.

② 105°C insulation system.

Transformers are designed to operate in a maximum ambient of 40°C. Contact your local Eaton sales office for availability on additional CE Marked control transformers. For other ratings or styles not shown, refer to Eaton.

**Type MTK CE Marked with Factory Mounted Finger-Safe Terminal Covers IP20****Primary: 240 x 480, 230 x 460, 220 x 440 with Jumpers**  
**Secondary: 120/115/110**

| VA   | Terminal Type | Wiring Diagram ① | Weight Lbs (kg) | Style Number  |
|------|---------------|------------------|-----------------|---------------|
| 250  | A             | 1                | 8.8 (4.0)       | CE0250K2ACEFS |
| 300  | A             | 1                | 11.0 (5.0)      | CE0300K2ACEFS |
| 350  | A             | 1                | 11.2 (5.1)      | CE0350K2ACEFS |
| 500  | A             | 1                | 14.8 (6.7)      | CE0500K2ACEFS |
| 750  | A             | 1                | 18.0 (8.2)      | CE0750K2ACEFS |
| 1000 | A             | 1                | 26.3 (11.9)     | CE1000K2ACEFS |
| 1500 | C             | 1                | 40.0 (18.1)     | CE1500K2ACEFS |
| 2000 | C             | 1                | 45.1 (20.5)     | CE2000K2ACEFS |
| 3000 | C             | 1                | 65.2 (29.6)     | CE3000K2ACEFS |
| 5000 | C             | 1                | 104.8 (47.5)    | CE5000K2ACEFS |

**Primary: 240 x 480 with Jumpers**  
**Secondary: 24**

| VA   | Terminal Type | Wiring Diagram ① | Weight Lbs (kg) | Style Number  |
|------|---------------|------------------|-----------------|---------------|
| 250  | C             | 2                | 8.2 (3.7)       | CE0250K2BCEFS |
| 300  | C             | 2                | 9.5 (4.3)       | CE0300K2BCEFS |
| 350  | C             | 2                | 12.2 (5.5)      | CE0350K2BCEFS |
| 500  | C             | 2                | 14.4 (6.5)      | CE0500K2BCEFS |
| 750  | C             | 2                | 19.5 (8.9)      | CE0750K2BCEFS |
| 1000 | C             | 2                | 26.2 (11.9)     | CE1000K2BCEFS |

**Primary: 120 x 240 with Jumpers**  
**Secondary: 24**

| VA   | Terminal Type | Wiring Diagram ① | Weight Lbs (kg) | Style Number  |
|------|---------------|------------------|-----------------|---------------|
| 250  | C             | 3                | 8.3 (3.8)       | CE0250K1BCEFS |
| 300  | C             | 3                | 9.3 (4.2)       | CE0300K1BCEFS |
| 350  | C             | 3                | 12.0 (5.4)      | CE0350K1BCEFS |
| 500  | C             | 3                | 14.4 (6.5)      | CE0500K1BCEFS |
| 750  | C             | 3                | 19.5 (8.9)      | CE0750K1BCEFS |
| 1000 | C             | 3                | 25.2 (11.4)     | CE1000K1BCEFS |

**Primary: 200/220/440, 208/230/460, 240/480**  
**Secondary: 23/110, 24/115, 25/120**

| VA   | Terminal Type | Wiring Diagram ① | Weight Lbs (kg) | Style Number  |
|------|---------------|------------------|-----------------|---------------|
| 250  | B             | 7                | 12.5 (5.7)      | CE0250K5ECEFS |
| 300  | B             | 7                | 14.0 (6.3)      | CE0300K5ECEFS |
| 350  | B             | 7                | 15.3 (6.9)      | CE0350K5ECEFS |
| 500  | B             | 7                | 20.8 (9.4)      | CE0500K5ECEFS |
| 750  | C             | 7                | 29.8 (13.5)     | CE0750K5ECEFS |
| 1000 | C             | 7                | 30.2 (13.7)     | CE1000K5ECEFS |

**Primary: 220/380/440/550, 230/400/460/575, 240/416/480/600**  
**Secondary: 23/110, 24/115, 25/120**

| VA   | Terminal Type | Wiring Diagram ① | Weight Lbs (kg) | Style Number  |
|------|---------------|------------------|-----------------|---------------|
| 250  | B             | 14               | 14.3 (6.5)      | CE0250K2UCEFS |
| 300  | B             | 14               | 15.8 (7.2)      | CE0300K2UCEFS |
| 350  | B             | 14               | 16.5 (7.5)      | CE0350K2UCEFS |
| 500  | B             | 14               | 20.5 (9.3)      | CE0500K2UCEFS |
| 750  | C             | 14               | 28.8 (13.1)     | CE0750K2UCEFS |
| 1000 | C             | 14               | 39.4 (17.9)     | CE1000K2UCEFS |

**Primary: 208/230/400/460/575**  
**Secondary: 24 ②/115/230**

| VA   | Terminal Type | Wiring Diagram ① | Weight Lbs (kg) | Style Number  |
|------|---------------|------------------|-----------------|---------------|
| 250  | B             | 15               | 14.9 (6.8)      | CE0250K2VCEFS |
| 300  | B             | 15               | 17.4 (7.9)      | CE0300K2VCEFS |
| 350  | B             | 15               | 17.8 (8.1)      | CE0350K2VCEFS |
| 500  | B             | 15               | 26.6 (12.1)     | CE0500K2VCEFS |
| 750  | B             | 15               | 32.5 (14.7)     | CE0750K2VCEFS |
| 1000 | C             | 15               | 44.0 (20.0)     | CE1000K2VCEFS |
| 1500 | C             | 15               | 45.4 (20.6)     | CE1500K2WCEFS |
| 2000 | C             | 16               | 58.6 (26.6)     | CE2000K2WCEFS |
| 3000 | C             | 16               | 92.9 (42.1)     | CE3000K2WCEFS |
| 5000 | C             | 16               | 127.4 (57.8)    | CE5000K2WCEFS |

**Primary: 240/416/480/600, 230/400/460/575, 220/380/440/550, 208/500**  
**Secondary: 99/120/130, 95/115/125, 91/110/120, 85/100/110**

| VA   | Terminal Type | Wiring Diagram ① | Weight Lbs (kg) | Style Number  |
|------|---------------|------------------|-----------------|---------------|
| 250  | A             | 8                | 11.4 (5.2)      | CE0250K6UCEFS |
| 300  | A             | 8                | 13.6 (6.2)      | CE0300K6UCEFS |
| 350  | A             | 8                | 14.2 (6.4)      | CE0350K6UCEFS |
| 500  | A             | 8                | 17.4 (7.9)      | CE0500K6UCEFS |
| 750  | A             | 8                | 27.5 (12.5)     | CE0750K6UCEFS |
| 1000 | A             | 8                | 27.9 (12.6)     | CE1000K6UCEFS |
| 1500 | A             | 8                | 43.1 (19.5)     | CE1500K6UCEFS |
| 2000 | B             | 8                | 56.0 (25.4)     | CE2000K6UCEFS |
| 3000 | B             | 8                | 76.2 (34.6)     | CE3000K6UCEFS |

**Notes**① See **Page V7-T7-22** for wiring diagrams.

② 24 volt secondary only available through 1000 VA.

## Accessories

### Protection Index IP00

When terminal covers are installed on primary and secondary, and fuse block covers are used, the protection index is IP20.

### Finger-Safe Terminal Covers (Optional)

- Fits CE Marked designs 50–750 VA
- Fits MTE designs 0.25–750 VA

#### Finger-Safe Terminal Covers

|                                                                                   | Description                              | Catalog Number |
|-----------------------------------------------------------------------------------|------------------------------------------|----------------|
| <b>FSK4</b>                                                                       | Four terminal transformers               | <b>FSK4</b>    |
|  |                                          |                |
|                                                                                   | Four terminal Series 2 transformers only | <b>FSK4S2</b>  |
| <b>FSK6</b>                                                                       | Six terminal transformers                | <b>FSK6</b>    |
|  |                                          |                |

### Finger-Safe Primary Fuse Block Covers

- Fits two-pole primary fuse blocks on MTE designs

#### Finger-Safe Primary Fuse Block Covers

|                                                                                     | Description               | Catalog Number |
|-------------------------------------------------------------------------------------|---------------------------|----------------|
| <b>FSKFB</b>                                                                        | Primary fuse block covers | <b>FSKFB</b>   |
|  |                           |                |

### Secondary Fuse Clip Cover

#### Secondary Fuse Clip Cover

| Description                     | Catalog Number |
|---------------------------------|----------------|
| Fits 500 VA and smaller models  | <b>SFCS</b>    |
| Fits models greater than 500 VA | <b>SFCL</b>    |

## Technical Data and Specifications

### Overload Capability

Short-term overload is designed into transformers as required by ANSI. Basically, dry-type distribution transformers will deliver 200% nameplate load for one-half hour, 150% load for one hour and 125% load for four hours without being damaged, provided that a constant 50% load precedes and follows the overload. See ANSI C57.96-01.250 for additional limitations.

Continuous overload capacity is not deliberately designed into a transformer because the design objective is to be within the allowed winding temperature rise with nameplate loading.

### Insulation System and Temperature Rise

Industry standards classify insulation systems and rise as shown below:

#### Insulation System Classification

| Ambient | + Winding Rise | + Hot Spot | = Temp. Class |
|---------|----------------|------------|---------------|
| 40°C    | 55°C           | 10°C       | 105°C         |
| 40°C    | 80°C           | 30°C       | 150°C         |
| 25°C    | 135°C          | 20°C       | 180°C         |
| 40°C    | 115°C          | 30°C       | 185°C         |
| 40°C    | 150°C          | 30°C       | 220°C         |

The design life of transformers having different insulation systems is the same—the lower-temperature systems are designed for the same life as the higher-temperature systems.

### Series-Multiple Windings

Series-multiple windings consist of two similar coils in each winding that can be connected in series or parallel (multiple). Transformers with series-multiple windings are designated with an "x" or "/" between the voltage ratings, such as voltages of "120/240" or "240 x 480." If the series-multiple winding is designated by an "x," the winding can be connected only for a series or parallel. With the "/" designation, a mid-point also becomes available in addition to the series or parallel connection. As an example, a 120 x 240 winding can be connected for either 120 (parallel) or 240 (series), but a 120/240 winding can be connected for 120 (parallel), 240 (series) or 240 with a 120 mid-point.

For additional information, please refer to Volume 2, **CA08100003E**.

# 7.1

## Industrial Control Transformers

### Transformers

#### Wiring Diagrams

Diagram 1

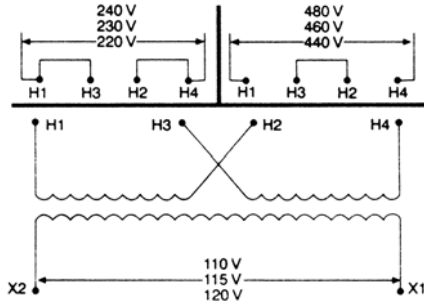


Diagram 2

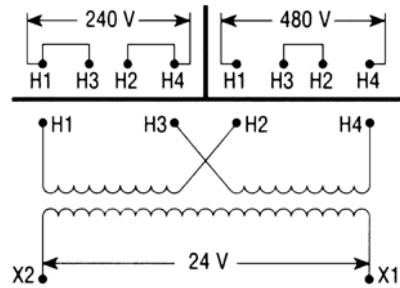


Diagram 3

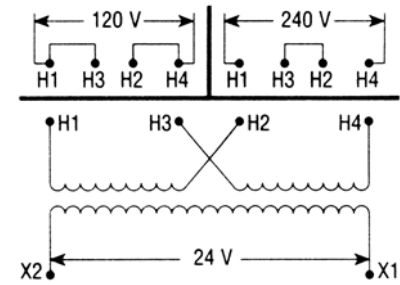


Diagram 4

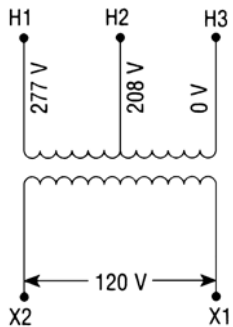


Diagram 5

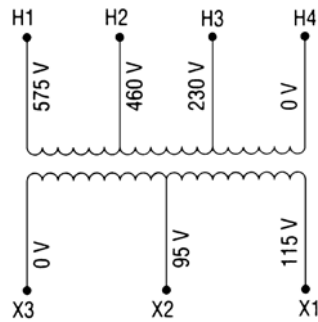


Diagram 6

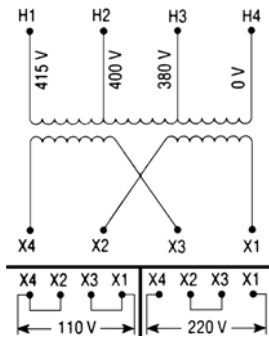


Diagram 7

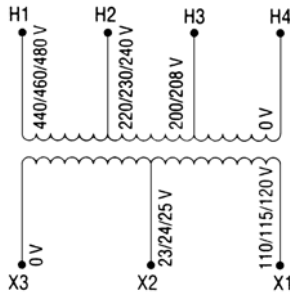


Diagram 8

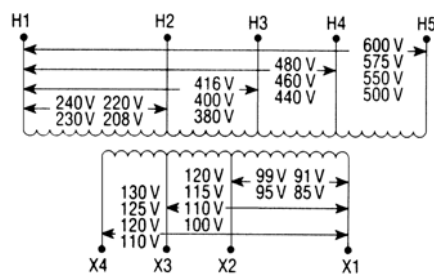


Diagram 9

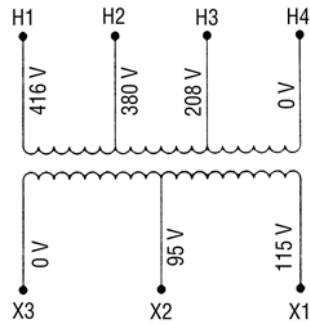


Diagram 10

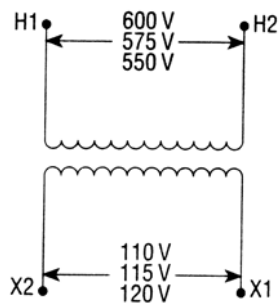


Diagram 11

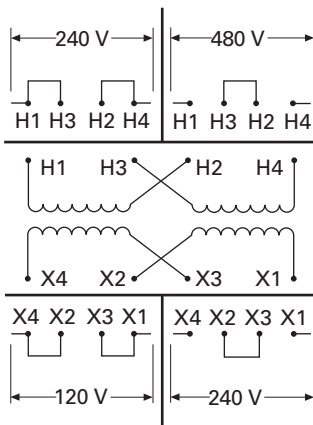


Diagram 12

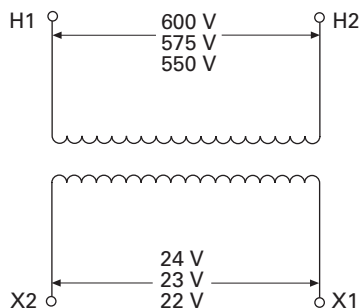


Diagram 13

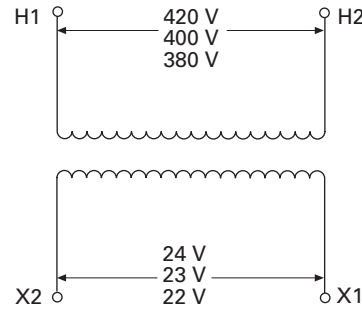


Diagram 14

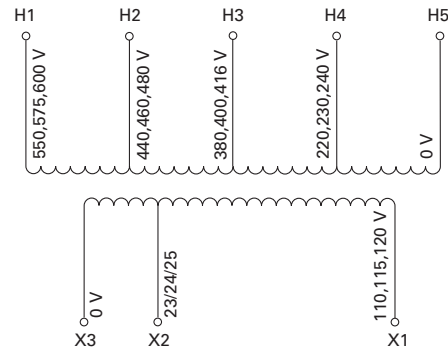


Diagram 15

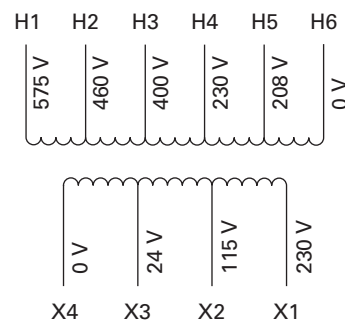
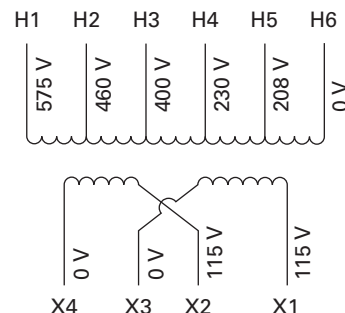


Diagram 16



### Acceptable Rating of Primary Overcurrent Protection for CE Marked Control Transformers <sup>①</sup>

Fuses 13/32 x 1-1/2 Inches (10 x 38 mm) Timelag (IEC 269)

| Sec. Voltage | 50  | 75  | 100 | 150 | 200 | 250 | 300 | 350  | 500  | 750  |
|--------------|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| 115          | 2.0 | 2.0 | 4.0 | 4.0 | 6.0 | 6.0 | 8.0 | 10.0 | 12.0 | 20.0 |
| 120          | 2.0 | 2.0 | 4.0 | 4.0 | 6.0 | 6.0 | 8.0 | 10.0 | 12.0 | 20.0 |
| 200          | 1.0 | 2.0 | 2.0 | 4.0 | 4.0 | 4.0 | 4.0 | 6.0  | 8.0  | 12.0 |
| 208          | 1.0 | 2.0 | 2.0 | 4.0 | 4.0 | 4.0 | 4.0 | 6.0  | 8.0  | 12.0 |
| 220          | 1.0 | 1.0 | 2.0 | 4.0 | 4.0 | 4.0 | 4.0 | 6.0  | 6.0  | 10.0 |
| 230          | 1.0 | 1.0 | 2.0 | 4.0 | 4.0 | 4.0 | 4.0 | 6.0  | 6.0  | 10.0 |
| 240          | 1.0 | 1.0 | 2.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0  | 6.0  | 10.0 |
| 277          | 0.5 | 1.0 | 1.0 | 2.0 | 4.0 | 4.0 | 4.0 | 4.0  | 6.0  | 8.0  |
| 380          | 0.5 | 1.0 | 1.0 | 2.0 | 2.0 | 4.0 | 4.0 | 4.0  | 6.0  | 6.0  |
| 400          | 0.5 | 0.5 | 1.0 | 2.0 | 2.0 | 4.0 | 4.0 | 4.0  | 4.0  | 6.0  |
| 415          | 0.5 | 0.5 | 1.0 | 1.0 | 2.0 | 4.0 | 4.0 | 4.0  | 4.0  | 6.0  |
| 440          | 0.5 | 0.5 | 1.0 | 1.0 | 2.0 | 2.0 | 4.0 | 4.0  | 4.0  | 6.0  |
| 460          | 0.5 | 0.5 | 1.0 | 1.0 | 2.0 | 2.0 | 4.0 | 4.0  | 4.0  | 6.0  |
| 480          | 0.5 | 0.5 | 0.5 | 1.0 | 2.0 | 2.0 | 4.0 | 4.0  | 4.0  | 6.0  |
| 550          | 0.5 | 0.5 | 0.5 | 1.0 | 1.0 | 2.0 | 2.0 | 4.0  | 4.0  | 4.0  |
| 575          | 0.5 | 0.5 | 0.5 | 1.0 | 1.0 | 2.0 | 2.0 | 4.0  | 4.0  | 4.0  |
| 600          | 0.5 | 0.5 | 0.5 | 1.0 | 2.0 | 2.0 | 2.0 | 4.0  | 4.0  | 4.0  |

### Acceptable Maximum Rating of Secondary Overcurrent Protection <sup>①</sup>

Miniature Fuses 5 x 20 mm Timelag (IEC 127-2/III)

| Sec. Voltage | 50   | 75   | 100  | 150  | 200  | 250   | 300   | 350   | 500   | 750   |
|--------------|------|------|------|------|------|-------|-------|-------|-------|-------|
| 23           | 2.50 | 4.00 | 5.00 | 8.00 | 10.0 | 12.00 | 16.00 | 16.00 | 25.00 | —     |
| 24           | 2.50 | 4.00 | 5.00 | 8.00 | 10.0 | 12.00 | 16.00 | 16.00 | 25.00 | 32.00 |
| 25           | 2.50 | 4.00 | 5.00 | 8.00 | 10.0 | 12.00 | 16.00 | 16.00 | 25.00 | 32.00 |
| 90           | 0.63 | 1.00 | 1.25 | 2.00 | 2.50 | 3.15  | 4.00  | 4.00  | 6.30  | 10.00 |
| 95           | 0.63 | 0.80 | 1.25 | 1.60 | 2.50 | 3.15  | 4.00  | 4.00  | 6.30  | 8.00  |
| 100          | 0.50 | 0.80 | 1.00 | 1.60 | 2.00 | 2.50  | 3.15  | 4.00  | 5.00  | 8.00  |
| 110          | 0.50 | 0.80 | 1.00 | 1.60 | 2.00 | 2.50  | 3.15  | 4.00  | 5.00  | 8.00  |
| 115          | 0.50 | 0.80 | 1.00 | 1.60 | 2.00 | 2.50  | 3.15  | 3.15  | 5.00  | 8.00  |
| 120          | 0.50 | 0.63 | 1.00 | 1.25 | 2.00 | 2.50  | 2.50  | 3.15  | 5.00  | 6.30  |
| 220          | 0.25 | 0.40 | 0.50 | 0.80 | 1.00 | 1.25  | 1.60  | 1.60  | 2.50  | 4.00  |
| 230          | 0.25 | 0.40 | 0.50 | 0.80 | 1.00 | 1.25  | 1.60  | 1.60  | 2.50  | 4.00  |
| 240          | 0.25 | 0.32 | 0.50 | 0.63 | 1.00 | 1.25  | 1.25  | 1.60  | 2.50  | 3.15  |

### Regulation Data Chart

| Transformer VA Rating | Inrush VA at 20% Power Factor |                           |                           |
|-----------------------|-------------------------------|---------------------------|---------------------------|
|                       | NEMA/IEC 95% Sec. Voltage     | NEMA/IEC 90% Sec. Voltage | NEMA/IEC 85% Sec. Voltage |
| 25 <sup>②</sup>       | 100/—                         | 130/—                     | 150/—                     |
| 50 <sup>②</sup>       | 170/190                       | 200/220                   | 240/270                   |
| 75 <sup>②</sup>       | 310/350                       | 410/460                   | 450/600                   |
| 100 <sup>②</sup>      | 370/410                       | 540/600                   | 730/810                   |
| 150 <sup>③</sup>      | 780/850                       | 930/1030                  | 1150/1270                 |
| 200 <sup>③</sup>      | 810/900                       | 1150/1270                 | 1450/1600                 |
| 250 <sup>③</sup>      | 1400/1540                     | 1900/2090                 | 2300/2530                 |
| 300 <sup>③</sup>      | 1900/2090                     | 2700/2970                 | 3850/4240                 |
| 350 <sup>③</sup>      | 3100/3410                     | 3650/4020                 | 4800/5280                 |
| 500 <sup>③</sup>      | 4000/4400                     | 5300/5830                 | 7000/7700                 |
| 750 <sup>③</sup>      | 8300/9130                     | 11,000/12,100             | 14,000/15,400             |
| 1000 <sup>③</sup>     | 15,000/16,500                 | 21,000/23,000             | 27,000/29,500             |
| 1000 <sup>④</sup>     | 9000/9900                     | 13,000/14,300             | 18,500/20,300             |
| 1500 <sup>④</sup>     | 10,500/11,500                 | 15,000/16,500             | 20,500/22,500             |
| 2000 <sup>④</sup>     | 17,000/18,900                 | 25,500/27,300             | 34,000/36,400             |
| 3000 <sup>④</sup>     | 24,000/25,700                 | 36,000/38,500             | 47,500/50,200             |
| 5000 <sup>④</sup>     | 55,000/58,800                 | 92,500/98,900             | 115,000/122,000           |

#### Notes

① For values over 6.3A, use 10 x 38 mm timelag (IEC - 269-3-1). T<sub>a</sub> = 40°C control type.

② For units with Class 105°C insulation system.

③ For units with Class 130°C insulation system.

④ For units with Class 180°C insulation system.

To comply with NEMA standards that require all magnetic devices to operate successfully at 85% of rated voltage, the 90% secondary column is most often used in selecting a transformer. No comparable requirement is available for IEC.



Type AP Transformer



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| Type AP                                 |          |
| Catalog Number Selection .....          | V7-T7-26 |
| Product Selection .....                 | V7-T7-26 |
| Technical Data and Specifications ..... | V7-T7-26 |

Type AP

Product Description

- Encapsulated designs

Application Description

Transformers provide stepped-down voltages to machine tool control devices, enabling control circuits to be isolated from all power and lighting circuits. This allows the use of grounded or ungrounded circuits that are independent of the power or lighting grounds; thus, greater safety is afforded the operator. The control transformer line is particularly adaptable on applications where compact construction is demanded.

Features, Benefits and Functions

- Resin encapsulated
- 60 Hz operation
- 180°C insulation system
- 115°C rise standard; 80°C rise optional
- Convenient screw-type terminal board
- Bottom or side/wall-mounting designs
- Performance meets/exceeds requirements of ANSI/NEMA ST-1
- Regulation exceeds ANSI/NEMA requirements for all ratings

Standards and Certifications

- UL recognized



Industry Standards

All Eaton dry-type distribution and control transformers are built and tested in accordance with applicable NEMA, ANSI and IEEE Standards.

**Catalog Number Selection**

Please refer to **Page V7-T7-3**.

**Product Selection**

Additional Product Selection information is available in Volume 2, **CA08100003E**.

**240/480 Volts to 120/240 Volts, 60 Hz**

| kVA | Mounting  | Frame | Wiring Diagram ① | Weight Lbs (kg) | Style Number     |
|-----|-----------|-------|------------------|-----------------|------------------|
| 3   | Bottom    | FR133 | 5                | 65 (29.5)       | <b>C0003P7GB</b> |
| 5   | Bottom    | FR99  | 5                | 104 (47.2)      | <b>C0005P7GB</b> |
| 7.5 | Bottom    | FR100 | 5                | 129 (58.6)      | <b>C0007P7GB</b> |
| 10  | Bottom    | FR101 | 5                | 148 (67.2)      | <b>C0010P7GB</b> |
| 15  | Bottom    | FR134 | 5                | 197 (89.4)      | <b>C0015P7GB</b> |
| 3   | Side/Wall | FR292 | 5                | 65 (29.5)       | <b>C0003P7GS</b> |
| 5   | Side/Wall | FR256 | 5                | 104 (47.2)      | <b>C0005P7GS</b> |
| 7.5 | Side/Wall | FR257 | 5                | 129 (58.6)      | <b>C0007P7GS</b> |
| 10  | Side/Wall | FR258 | 5                | 148 (67.2)      | <b>C0010P7GS</b> |
| 15  | Side/Wall | FR259 | 5                | 197 (89.4)      | <b>C0015P7GS</b> |

**Technical Data and Specifications****Overload Capability**

Short-term overload is designed into transformers as required by ANSI. Dry-type distribution transformers will deliver 200% nameplate load for one-half hour, 150% load for one hour and 125% load for four hours without being damaged, provided that a constant 50% load precedes and follows the overload. See ANSI C57.96-01.250 for additional limitations.

Continuous overload capacity is not deliberately designed into a transformer because the design objective is to be within the allowed winding temperature rise with nameplate loading.

**Insulation System and Temperature Rise**

Industry standards classify insulation systems and rise as shown below:

**Insulation System Classification**

| Ambient | + Winding Rise | + Hot Spot | = Temp. Class |
|---------|----------------|------------|---------------|
| 40°C    | 55°C           | 10°C       | 105°C         |
| 40°C    | 80°C           | 30°C       | 150°C         |
| 25°C    | 135°C          | 20°C       | 180°C         |
| 40°C    | 115°C          | 30°C       | 185°C         |
| 40°C    | 150°C          | 30°C       | 220°C         |

The design life of transformers having different insulation systems is the same—the lower-temperature systems are designed for the same life as the higher-temperature systems.

**Sound Levels**

All Eaton 600 volt class general-purpose dry-type distribution transformers are designed to meet NEMA ST-20 levels.

**Winding Terminations**

Eaton recommends external cables be rated 90°C (sized at 75°C ampacity) for encapsulated designs.

**Series-Multiple Windings**

Series-multiple windings consist of two similar coils in each winding that can be connected in series or parallel (multiple). Transformers with series-multiple windings are designated with an “x” or “/” between the voltage ratings, such as voltages of “120/240” or “240 x 480.” If the series-multiple winding is designated by an “x,” the winding can be connected only for a series or parallel.

With the “/” designation, a mid-point also becomes available in addition to the series or parallel connection. As an example, a 120 x 240 winding can be connected for either 120 (parallel) or 240 (series), but a 120/240 winding can be connected for 120 (parallel), 240 (series) or 240 with a 120 mid-point.

For additional information, please refer to Volume 2, **CA08100003E**.

**Note:** For additional information, refer to Eaton’s Industrial Control Transformer Binder B1228A. For other ratings or styles not shown, or for special enclosure types (including stainless steel), refer to Eaton.

**Note**

① See **Page V7-T7-22** for wiring diagrams.