

# Reducing sizes of control power transformers and power supplies with Eaton's *XT* IEC motor control



**XT** Starter with XTOB Thermal OL



**XT** Manual Motor Controller

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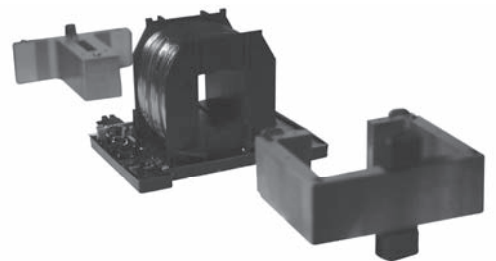
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## Introduction

Reducing costs is necessary for OEMs to maintain a competitive edge. Eaton's line of IEC motor starters was designed with enhanced features and benefits that help OEMs reduce material costs while improving reliability, installation, usability, and safety.

The newest line of Eaton's IEC motor starters includes new innovations in coil design, yielding greater pickup tolerances while reducing energy consumption. In many common scenarios where the control panel contains three contactors or more, switching to the Eaton **XT** contactor from another contactor line typically allows users to reduce their control power transformer or power supply by at least one size, with greater likelihood of larger reductions as more contactors are added to the control panel.

This application note explains how control power transformers and power supplies are sized. Coil consumption tables for Eaton **XT** and competitive lines are provided in **Tables 7** and **Table 8**. A CPT/power supply calculation sheet is provided at the end of this document.



Electronic Coil and Magnet Armature

**How to size a control power transformer (CPT)**

CPTs are most commonly identified by their nominal, steady-state VA capacity, but they also have a maximum rating describing the amount of inrush they can support on the secondary. Some loads, such as relay coils or contactor coils, require a temporary spike in power once power is applied. Then after the contacts have been pulled in, very little power is needed to hold the contacts closed. Other devices, such as pilot lights, consume the same amount of energy when power is first applied through to continued operation. CPTs should be selected to ensure enough power is available on the secondary side to handle the inrush power needs of the loads the CPT supplies. Each CPT has a maximum inrush power rating. This inrush VA is the critical rating used to size CPTs. This value is determined using the following formula:

$$\text{CPT INRUSH VA} = \sqrt{(\text{Total Inrush})^2 + (\text{Total Sealed})^2}$$

**Example**

A control panel contains qty (1) 7A contactor, qty (2) 18A contactors, qty (2) relays, and qty (6) indicating lights. These loads are supplied 120 Vac from a CPT with a 480 Vac primary. Determine the CPT size needed.

where "Total Inrush" is the total sum of all the inrush power of the loads applied to the CPT, and "Sealed Inrush" is the total sum of all the sealed power of the loads applied to the CPT.

Once the Inrush power requirement on the CPT has been determined, the CPT is sized from the selection chart using either the 85%, 90%, or 95% secondary voltage. This means that the secondary voltage of the CPT will not dip below the respective percentage provided that the inrush power put on the CPT doesn't exceed the inrush power from the selection chart. 90% or 95% is mostly recommended, as exceeding the inrush power rating of the CPT could lead to a deeper decrease in coil voltage on the secondary, which could cause the contactor and relay coils or other devices to prematurely fail.

In this example, the CPT needs to be able to provide 250 VA to support the inrush demand of the loads. The C0075E2A has enough inrush VA capacity to support these loads.

**Table 1. Example Calculating CPT Inrush Demand**

| Qty   | Description       | Inrush VA | Sealed VA | Total Inrush | Total Sealed |
|-------|-------------------|-----------|-----------|--------------|--------------|
| 1     | XTCE007B10A coil  | 25        | 3.3       | 25           | 3.3          |
| 2     | XTCE018C10A coil  | 58        | 6.5       | 116          | 13.0         |
| 2     | Relays            | 29        | 3.3       | 58           | 6.6          |
| 6     | Indicating lights | 7         | 7.0       | 42           | 42.0         |
| Total |                   |           |           | 241          | 65           |

$$\begin{aligned} \text{CPT INRUSH VA} &= \sqrt{(241)^2 + (65)^2} \\ &= 250 \text{ VA} \end{aligned}$$

**Table 2. Example CPT Selection Chart**

| Part Number | Primary Voltage | Secondary Voltage | Transformer VA | Inrush VA (90% Secondary Inrush Voltage) |
|-------------|-----------------|-------------------|----------------|------------------------------------------|
| C0050E2A    | 240 x 480       | 120               | 50             | 200                                      |
| C0075E2A    | 240 x 480       | 120               | 75             | 410                                      |
| C0100E2A    | 240 x 480       | 120               | 100            | 540                                      |

C0075E2A has enough inrush VA capacity to handle the 250 VA inrush of the components.

**Note:** See **Table 4** for CPT selection charts for a variety of primary and secondary voltages.

### How to size a power supply

Power supplies are sized based on the amount of inrush (surge) and sealed (nominal or steady-state) power demands of the loads applied to the power supply. The respective loads are calculated by simply summing the loads, both for inrush and sealed.

The power supply is selected based on these calculated demands on the power supply, and any other load specifications for the respective power supply, such as minimum time allotment between surges (inrush). Always be sure to verify proper application per the power supply specifications.

$$\text{Inrush load} = \text{inrush load}_1 + \text{inrush load}_2 + \dots + \text{inrush load}_n$$

$$\text{Nominal load} = \text{sealed load}_1 + \text{sealed load}_2 + \dots + \text{sealed load}_n$$

For extended operational life of the power supply, increase the calculated nominal load by 20%.

### Example

Select a 24 Vdc power supply for a control panel containing qty (8) 7A contactors, qty (4) 18A contactors, qty (2) relays, and qty (5) indicating lights.

In this example, the PSG60E has enough capacity to handle the surge (inrush) and nominal (steady-state) demand of the loads.

$$\text{Current} = \text{Power/Voltage}$$

**Table 3. Calculating Demand on Power Supply**

| Quantity | Description       | Inrush W | Sealed W | Surge Current | Nominal Current | Total Surge Current | Total Nominal Current |
|----------|-------------------|----------|----------|---------------|-----------------|---------------------|-----------------------|
| 8        | XTCE007B10TD coil | 3        | 3        | 0.125         | 0.13            | 1.00                | 1.00                  |
| 4        | XTCE018C10TD coil | 12       | 0.5      | 0.50          | 0.02            | 2.00                | 0.08                  |
| 2        | Relay             | 2.6      | 2.6      | 0.11          | 0.11            | 0.22                | 0.22                  |
| 5        | Indicating light  | 1.2      | 1.2      | 0.05          | 0.05            | 0.25                | 0.25                  |
| Total    |                   |          |          |               |                 | 3.47 A              | 1.55 A                |

Derating for extended operation: Total nominal current = 1.55 x 120% = **1.86**

**Table 4. Example Power Supply Selection Chart**

| Part Number | Capacity W | Input Voltage             | Output Voltage | Surge Current | Nominal Current | Surge Capacity      |
|-------------|------------|---------------------------|----------------|---------------|-----------------|---------------------|
| PSG60E      | 60         | 100–240 Vac, single-phase | 24 Vdc         | 3.75A         | 2.5A            | 1s at 10s intervals |
| PSG120E     | 120        | 100–240 Vac, single-phase | 24 Vdc         | 7.5A          | 5A              | 1s at 10s intervals |
| PSG240E     | 240        | 100–240 Vac, single-phase | 24 Vdc         | 15A           | 10A             | 1s at 10s intervals |

PSG60E has enough nominal and surge current capacity for these components.

**Note:** See **Table 5** and **Table 6** for power supply selection charts for various Eaton power supplies.

## Control power transformer selection



Table 5. Type MTE—Product Selection

| Transformer VA                                                                                                                                                                         | Dimensions (Inches) |       |        | Weight (Lbs) | Inrush VA at 20% Power Factor (Secondary Voltage) |       |       | Part Number |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------|--------|--------------|---------------------------------------------------|-------|-------|-------------|
|                                                                                                                                                                                        | Height              | Width | Depth  |              | 95%                                               | 90%   | 85%   |             |
| <b>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</b>                                                          |                     |       |        |              |                                                   |       |       |             |
| 25                                                                                                                                                                                     | 2-9/16              | 3     | 2-1/2  | 1.7          | 100                                               | 130   | 150   | C0025E2A    |
| 50                                                                                                                                                                                     | 2-9/16              | 3     | 3      | 2.6          | 170                                               | 200   | 240   | C0050E2A    |
| 75                                                                                                                                                                                     | 2-9/16              | 3     | 3-1/2  | 3.5          | 310                                               | 410   | 540   | C0075E2A    |
| 100                                                                                                                                                                                    | 2-7/8               | 3-3/8 | 3-3/8  | 4.2          | 370                                               | 540   | 730   | C0100E2A    |
| 150                                                                                                                                                                                    | 3-3/16              | 3-3/4 | 4      | 6.7          | 780                                               | 930   | 1150  | C0150E2A    |
| 200                                                                                                                                                                                    | 3-13/16             | 4-1/2 | 4      | 8.5          | 810                                               | 1150  | 1450  | C0200E2A    |
| 250                                                                                                                                                                                    | 3-13/16             | 4-1/2 | 4-3/8  | 10           | 1400                                              | 1900  | 2300  | C0250E2A    |
| 300                                                                                                                                                                                    | 3-13/16             | 4-1/2 | 4-3/4  | 11.3         | 1900                                              | 2700  | 3850  | C0300E2A    |
| 350                                                                                                                                                                                    | 3-13/16             | 4-1/2 | 5-1/4  | 13.6         | 3100                                              | 3650  | 4800  | C0350E2A    |
| 500                                                                                                                                                                                    | 4-3/4               | 5-1/4 | 5-1/2  | 19.2         | 4000                                              | 5300  | 7000  | C0500E2A    |
| 750                                                                                                                                                                                    | 4-3/4               | 5-1/4 | 7      | 28.1         | 8300                                              | 11000 | 14000 | C0750E2A    |
| 1000                                                                                                                                                                                   | 5-11/16             | 6-3/4 | 6-7/16 | 29.5         | 15000                                             | 21000 | 27000 | C1000E2A    |
| <b>Primary: 240 x 480 with jumpers / Secondary: 24 with fuse clips for 13/32 x 1-1/2 fuses (through 500 VA)</b>                                                                        |                     |       |        |              |                                                   |       |       |             |
| 50                                                                                                                                                                                     | 2-9/16              | 3     | 3      | 2.7          | 170                                               | 200   | 240   | C0050E2B    |
| 75                                                                                                                                                                                     | 2-9/16              | 3     | 3-1/2  | 3.5          | 310                                               | 410   | 540   | C0075E2B    |
| 100                                                                                                                                                                                    | 2-7/8               | 3-3/8 | 3-3/8  | 4.2          | 370                                               | 540   | 730   | C0100E2B    |
| 150                                                                                                                                                                                    | 3-3/16              | 3-3/4 | 4      | 6.7          | 780                                               | 930   | 1150  | C0150E2B    |
| 200                                                                                                                                                                                    | 3-13/16             | 4-1/2 | 4      | 8.5          | 810                                               | 1150  | 1450  | C0200E2B    |
| 250                                                                                                                                                                                    | 3-13/16             | 4-1/2 | 4-3/8  | 10.1         | 1400                                              | 1900  | 2300  | C0250E2B    |
| 300                                                                                                                                                                                    | 3-13/16             | 4-1/2 | 4-3/4  | 11.4         | 1900                                              | 2700  | 3850  | C0300E2B    |
| 350                                                                                                                                                                                    | 3-13/16             | 4-1/2 | 5-1/4  | 13.4         | 3100                                              | 3650  | 4800  | C0350E2B    |
| 500                                                                                                                                                                                    | 4-3/4               | 5-1/4 | 5-5/8  | 17.5         | 4000                                              | 5300  | 7000  | C0500E2B    |
| 750                                                                                                                                                                                    | 4-3/4               | 5-1/4 | 7      | 28.1         | 8300                                              | 11000 | 14000 | C0750E2B    |
| <b>Primary: 550/575/600 / Secondary: 110/115/120 with for 13/32 x 1-1/2 fuses</b>                                                                                                      |                     |       |        |              |                                                   |       |       |             |
| 50                                                                                                                                                                                     | 2-9/16              | 3     | 3      | 2.7          | 170                                               | 200   | 240   | C0050E4C    |
| 75                                                                                                                                                                                     | 2-9/16              | 3     | 3-1/2  | 3.6          | 310                                               | 410   | 540   | C0075E4C    |
| 100                                                                                                                                                                                    | 2-7/8               | 3-3/8 | 3-3/8  | 4.2          | 370                                               | 540   | 730   | C0100E4C    |
| 150                                                                                                                                                                                    | 3-3/16              | 3-3/4 | 4      | 6.8          | 780                                               | 930   | 1150  | C0150E4C    |
| 200                                                                                                                                                                                    | 3-13/16             | 4-1/2 | 4      | 8.4          | 810                                               | 1150  | 1450  | C0200E4C    |
| 250                                                                                                                                                                                    | 3-13/16             | 4-1/2 | 4-3/8  | 10           | 1400                                              | 1900  | 2300  | C0250E4C    |
| 300                                                                                                                                                                                    | 3-13/16             | 4-1/2 | 4-3/4  | 11.3         | 1900                                              | 2700  | 3850  | C0300E4C    |
| 350                                                                                                                                                                                    | 3-13/16             | 4-1/2 | 5-1/4  | 13.6         | 3100                                              | 3650  | 4800  | C0350E4C    |
| 500                                                                                                                                                                                    | 4-3/4               | 5-1/4 | 5-3/8  | 16.8         | 4000                                              | 5300  | 7000  | C0500E4C    |
| 750                                                                                                                                                                                    | 4-3/4               | 5-1/4 | 7      | 25.7         | 8300                                              | 11000 | 14000 | C0750E4C    |
| <b>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</b> |                     |       |        |              |                                                   |       |       |             |
| 50                                                                                                                                                                                     | 3-15/16             | 3     | 3      | 2.8          | 170                                               | 200   | 240   | C0050E2AFB  |
| 75                                                                                                                                                                                     | 3-15/16             | 3     | 3-1/2  | 3.7          | 310                                               | 410   | 540   | C0075E2AFB  |
| 100                                                                                                                                                                                    | 4-1/4               | 3-3/8 | 3-3/8  | 4.4          | 370                                               | 540   | 730   | C0100E2AFB  |
| 150                                                                                                                                                                                    | 4-9/16              | 3-3/4 | 4      | 6.9          | 780                                               | 930   | 1150  | C0150E2AFB  |
| 200                                                                                                                                                                                    | 5-3/16              | 4-1/2 | 4      | 8.7          | 810                                               | 1150  | 1450  | C0200E2AFB  |
| 250                                                                                                                                                                                    | 5-3/16              | 4-1/2 | 4-3/8  | 10.2         | 1400                                              | 1900  | 2300  | C0250E2AFB  |
| 300                                                                                                                                                                                    | 5-3/16              | 4-1/2 | 4-3/4  | 11.5         | 1900                                              | 2700  | 3850  | C0300E2AFB  |
| 350                                                                                                                                                                                    | 5-3/16              | 4-1/2 | 5-1/4  | 13.8         | 3100                                              | 3650  | 4800  | C0350E2AFB  |
| 500                                                                                                                                                                                    | 6-1/8               | 5-1/4 | 5-1/2  | 19.4         | 4000                                              | 5300  | 7000  | C0500E2AFB  |
| 750                                                                                                                                                                                    | 6-1/8               | 5-1/4 | 7      | 28.3         | 8300                                              | 11000 | 14000 | C0750E2AFB  |
| 1000                                                                                                                                                                                   | 7-1/16              | 6-3/4 | 6-7/16 | 29.7         | 15000                                             | 21000 | 27000 | C1000E2AFB  |
| <b>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</b>                                |                     |       |        |              |                                                   |       |       |             |
| 50                                                                                                                                                                                     | 3-15/16             | 3     | 3      | 2.8          | 170                                               | 200   | 240   | C0050E2BFB  |
| 75                                                                                                                                                                                     | 3-15/16             | 3     | 3-1/2  | 3.8          | 310                                               | 410   | 540   | C0075E2BFB  |
| 100                                                                                                                                                                                    | 4-1/4               | 3-3/8 | 3-3/8  | 4.4          | 370                                               | 540   | 730   | C0100E2BFB  |
| 150                                                                                                                                                                                    | 4-9/16              | 3-3/4 | 4      | 6.9          | 780                                               | 930   | 1150  | C0150E2BFB  |
| 200                                                                                                                                                                                    | 5-3/16              | 4-1/2 | 4      | 8.7          | 810                                               | 1150  | 1450  | C0200E2BFB  |
| 250                                                                                                                                                                                    | 5-3/16              | 4-1/2 | 4-3/8  | 10.3         | 1400                                              | 1900  | 2300  | C0250E2BFB  |
| 300                                                                                                                                                                                    | 5-3/16              | 4-1/2 | 4-3/4  | 11.6         | 1900                                              | 2700  | 3850  | C0300E2BFB  |
| 350                                                                                                                                                                                    | 5-3/16              | 4-1/2 | 5-1/4  | 13.6         | 3100                                              | 3650  | 4800  | C0350E2BFB  |
| 500                                                                                                                                                                                    | 6-1/8               | 5-1/4 | 5-5/8  | 17.7         | 4000                                              | 5300  | 7000  | C0500E2BFB  |

## Power supply selection



Table 6. PSG Power Supply Selection

|                                                    | PSG60E           | PSG120E          | PSG240E          | PSG480E          | PSG60F                                     | PSG120F                                    | PSG240F                                    | PSG480F                                    |
|----------------------------------------------------|------------------|------------------|------------------|------------------|--------------------------------------------|--------------------------------------------|--------------------------------------------|--------------------------------------------|
| Capacity                                           | 60W              | 120W             | 240W             | 480W             | 60W                                        | 120W                                       | 240W                                       | 480W                                       |
| <b>Input</b>                                       |                  |                  |                  |                  |                                            |                                            |                                            |                                            |
| Nominal voltage                                    | 100–240 Vac      | 100–240 Vac      | 100–240 Vac      | 100–240 Vac      | 3 x 400–500 Vac                            | 3 x 400–500 Vac                            | 3 x 400–500 Vac                            | 3 x 400–500 Vac                            |
| Voltage range                                      | 85–264 Vac ②     | 85–264 Vac ②     | 85–264 Vac ②     | 85–264 Vac ②     | 320–575 Vac ③                              | 320–575 Vac ③                              | 320–575 Vac ③                              | 320–575 Vac ③                              |
| Frequency                                          | 47–63 Hz ④       | 47–63 Hz ④       | 47–63 Hz ④       | 47–63 Hz ④       | 47–63 Hz ④                                 | 47–63 Hz ④                                 | 47–63 Hz ④                                 | 47–63 Hz ④                                 |
| Nominal current ①                                  | 1.1A             | 1.4A             | 2.9A             | 5.7A             | 0.3A                                       | 0.5A                                       | 0.8A                                       | 1.6A                                       |
| Inrush current limitation ①                        | 30A              | <80A             | N/A              | N/A              | <30A                                       | <30A                                       | <40A                                       | <50A                                       |
| Mains buffering at nominal load (typ.) ①           | >20 ms           | >35 ms           | >20 ms           | >20 ms           | >30 ms                                     | >35 ms                                     | >35 ms                                     | >20 ms                                     |
| Turn-on time                                       | <2.5 sec         | <1 sec           | <1 sec           | <1 sec           | <2 sec                                     | <1 sec                                     | <1 sec                                     | <1 sec                                     |
| Internal fuse                                      | T3.15 AH/250V    | T3.15 AH/250V    | T6.3AH/250V      | F10H/250V        | 3.15AH/500V                                | 3.15AH/500V                                | 3.15AH/500V                                | 3.15AH/500V                                |
| External fusing                                    | 6A, 10A, or 16A  | 6A, 10A, or 16A  | 10A or 16A       | 10A or 16A       | ⑤                                          | ⑤                                          | ⑤                                          | ⑤                                          |
| Leakage current                                    | <1 mA            | <1 mA            | <3.5 mA          | <1 mA            | <3.5 mA                                    | <3.5 mA                                    | <3.5 mA                                    | <3.5 mA                                    |
| <b>Output</b>                                      |                  |                  |                  |                  |                                            |                                            |                                            |                                            |
| Nominal output voltage                             | 24 Vdc ±2%       | 24 Vdc ±2%       | 24 Vdc ±2%       | 24 Vdc ±2%       | 24 Vdc ±2%                                 | 24 Vdc ±2%                                 | 24 Vdc ±2%                                 | 24 Vdc ±2%                                 |
| Adjustment range                                   | 22–28 Vdc        | 22–28 Vdc        | 22–28 Vdc        | 22–28 Vdc        | 22–28 Vdc                                  | 22–28 Vdc                                  | 22–28 Vdc                                  | 22–28 Vdc                                  |
| Nominal current                                    | <b>2.5A</b>      | <b>5A</b>        | <b>10A</b>       | <b>20A</b>       | <b>2.5A</b>                                | <b>5A</b>                                  | <b>10A</b>                                 | <b>20A</b>                                 |
| Startup with capacitive loads                      | Max. 8000 µF     | Max. 10,000 µF   | Max. 10,000 µF   | Max. 10,000 µF   | Max. 10,000 µF                             | Max. 10,000 µF                             | Max. 10,000 µF                             | Max. 10,000 µF                             |
| Max. power dissipation idling/nominal load approx. | 10W              | 22.5W            | 42.5W            | 72W              | 9W                                         | 18W                                        | 36W                                        | 72W                                        |
| Efficiency (at 400 Vac and nominal values)         | >85% typ         | >84% typ         | >84% typ         | >86% typ         | >86% at 3 x 400 Vac<br>>85% at 3 x 500 Vac | >86% at 3 x 400 Vac<br>>85% at 3 x 500 Vac | >87% at 3 x 400 Vac<br>>86% at 3 x 500 Vac | >86% at 3 x 400 Vac<br>>85% at 3 x 500 Vac |
| Current surge (at 24 Vdc)                          | <b>3.75A</b>     | <b>7.5A</b>      | <b>15A</b>       | <b>30A</b>       | <b>3.75A</b>                               | <b>7.5A</b>                                | <b>15A</b>                                 | <b>30A</b>                                 |
| Current surge time/cycle                           | 1s ⑥             | 1s ⑥             | 1s ⑥             | 1s ⑥             | 1s ⑥                                       | 1s ⑥                                       | 1s ⑥                                       | 1s ⑥                                       |
| Residual ripple/peak switching (20 MHz)            | <50 mV/<240 mVpp | <50 mV/<240 mVpp | <50 mV/<240 mVpp | <50 mV/<240 mVpp | <50 mV/<240 mVpp                           | <50 mV/<240 mVpp                           | <50 mV/<240 mVpp                           | <50 mV/<240 mVpp                           |
| Parallel operation                                 | With oring diode | With oring diode | With oring diode | With oring diode | With oring diode                           | With oring diode                           | With oring diode                           | With oring diode                           |

① Ratings for single-phase models are at 115 Vac; three-phase models are at 400 Vac.

② DC input range 120–375 Vdc.

③ DC input range 450–800 Vdc.

④ 0 Hz at DC input.

⑤ 3 x circuit breakers 6A, 10A, or 16A.

⑥ At 10-second intervals.



Table 7. PSS Power Supply Selection

|                         | PSS10E                            | PSS10F                            | PSS25E                            | PSS25F                            | PSS55A                            | PSS55B                            | PSS55C                            | PSS55D                   |
|-------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|--------------------------|
| Capacity                | 10W                               | 10W                               | 25W                               | 25W                               | 55W                               | 55W                               | 55W                               | 55W                      |
| <b>Input</b>            |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                          |
| Voltage                 | 110–240 Vac                       | 380–480 Vac                       | 110–240 Vac                       | 380–480 Vac                       | 115 Vac                           | 230 Vac                           | 380–480 Vac three-phase           | 480–600 Vac three-phase  |
| Input current (rms)     | 0.19A                             | 0.1A                              | 0.45A                             | 0.17A                             | 0.9A                              | 0.54A                             | 0.20A/phase                       | 0.07A/phase              |
| Frequency               | 47–63 Hz                          | 47–63 Hz                          | 47–63 Hz                          | 47–63 Hz                          | 47–63 Hz                          | 47–63 Hz                          | 47–63 Hz                          | 47–63 Hz                 |
| Voltage range           | ±10%                              | ±10%                              | ±10%                              | ±10%                              | ±15%                              | ±15%                              | ±10%                              | ±15%                     |
| Inrush current          | 25A                               | 25A                               | 35A                               | 35A                               | 16A                               | 32A                               | 15A                               | 15A                      |
| Overvoltage             | 330 Vac                           | 550 Vac                           | 330 Vac                           | 550 Vac                           | Varistor                          | Varistor                          | Varistor                          | Varistor                 |
| Internal input fuse     | T2A at 250V                       | T2A at 250V                       | T4A at 250V                       | T2A at 250V                       | T2A at 250V                       | T2A at 250V                       | 3 x T2A at 250V                   | —                        |
| External fusing         | Not required 2A 250 Vac slow blow | Not required 2A 250 Vac slow blow | Not required 2A 250 Vac slow blow | Not required 2A 250 Vac slow blow | Not required 2A 250 Vac slow blow | Not required 2A 250 Vac slow blow | Not required 2A 250 Vac slow blow | 3 x 1A 600 Vac slow blow |
| <b>Output</b>           |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                          |
| Voltage nominal         | 24 Vdc                            | 24 Vdc                            | 24 Vdc                            | 24 Vdc                            | 24 Vdc                            | 24V Vdc                           | 24 Vdc                            | 24 Vdc                   |
| Voltage regulation      | ±10%                              | ±10%                              | ±10%                              | ±10%                              | ±3.5%                             | ±3.5%                             | ±3.5%                             | ±3.5%                    |
| Current nominal         | <b>0.4A</b>                       | <b>0.4A</b>                       | <b>1.0A</b>                       | <b>1.0A</b>                       | <b>2.3A</b>                       | <b>2.3A</b>                       | <b>2.3A</b>                       | <b>2.3A</b>              |
| Voltage adj. range      | None                              | None                              | None                              | None                              | None                              | None                              | None                              | None                     |
| Current surge           | <b>1A</b>                         | <b>1A</b>                         | <b>6.8A</b>                       | <b>6.8A</b>                       | <b>10A</b>                        | <b>10A</b>                        | <b>10A</b>                        | <b>10A</b>               |
| Current surge time      | 35 ms                             | 35 ms                             | 85 ms                             | 85 ms                             | 180 ms                            | 180 ms                            | 180 ms                            | 180 ms                   |
| Surge cycle time        | —                                 | —                                 | —                                 | —                                 | 10s                               | 10s                               | 10s                               | 10s                      |
| Hold up time            | 100 ms                            | 100 ms                            | 100 ms                            | 100 ms                            | 70 ms                             | 70 ms                             | 24 ms                             | 30 ms                    |
| Max. load capacitance   | 10,000 µF                         | 10,000 µF                         | 10,000 µF                         | 10,000 µF                         | 10,000 µF                         | 10,000 µF                         | 10,000 µF                         | 10,000 µF                |
| Switching frequency     | 60 kHz                            | 60 kHz                            | 100 kHz                           | 100 kHz                           | 100 kHz                           | 100 kHz                           | 100 kHz                           | 61 kHz                   |
| Efficiency at max. load | 80%                               | 75%                               | 80%                               | 80%                               | 80%                               | 80%                               | 80%                               | 85%                      |
| Output ripple           | ±1%                               | ±1%                               | ±1%                               | ±1%                               | ±1%                               | ±1%                               | ±1%                               | ±1%                      |



**Table 8. Coil Power Consumption—AC Voltages 60 Hz**

| <b>HP 460V</b>  | <b>Eaton XT</b> | <b>Inrush VA</b> | <b>Sealed VA</b> | <b>Allen-Bradley®</b> | <b>Inrush VA</b> | <b>Sealed VA</b> | <b>Telemecanique®</b> | <b>Inrush VA</b> | <b>Sealed VA</b> |
|-----------------|-----------------|------------------|------------------|-----------------------|------------------|------------------|-----------------------|------------------|------------------|
| 3               | XTCE007B        | 25               | 3.3              | 100-C09               | 70               | 8                | LC1D09                | 70               | 7                |
| 5               | XTCE009B        | 25               | 3.3              | 100-C09               | 70               | 8                | LC1D09                | 70               | 7                |
| 7.5             | XTCE012B        | 25               | 3.3              | 100-C12               | 70               | 8                | LC1D12                | 70               | 7                |
| 10              | XTCE015B        | 25               | 3.3              | 100-C16               | 70               | 8                | LC1D18                | 70               | 7                |
| 15              | XTCE025C        | 58               | 6.5              | 100-C23               | 70               | 9                | LC1D25                | 70               | 7                |
| 20              | XTCE032C        | 58               | 6.5              | 100-C30               | 80               | 9                | LC1D32                | 70               | 7                |
| 25              | XTCE040D        | 154              | 14               | 100-C37               | 80               | 9                | LC1D40                | 245              | 26               |
| 30              | XTCE040D        | 154              | 14               | 100-C43               | 130              | 10               | LC1D40                | 245              | 26               |
| 40              | XTCE050D        | 154              | 14               | 100-C60               | 200              | 16               | LC1D50                | 245              | 26               |
| 50              | XTCE065D        | 154              | 14               | 100-C72               | 200              | 16               | LC1D65                | 245              | 26               |
| 60              | XTCE080F        | 372              | 37.1             | 100-C85               | 200              | 16               | LC1D80                | 245              | 26               |
| 75              | XTCE095F        | 328              | 22.6             | 100-D110              | 650              | 50               | LC1D115               | 350              | 6                |
| 100             | XTCE115G        | 170              | 3.1              | 100-D140              | 650              | 50               | LC1D150               | 350              | 6                |
| 125             | XTCE150G        | 170              | 3.1              | 100-D180              | 650              | 50               | LC1F185               | 970              | 66               |
| <b>AC-3 (A)</b> | <b>Eaton XT</b> | <b>Inrush VA</b> | <b>Sealed VA</b> | <b>Allen-Bradley</b>  | <b>Inrush VA</b> | <b>Sealed VA</b> | <b>Telemecanique</b>  | <b>Inrush VA</b> | <b>Sealed VA</b> |
| 7               | XTCE007B        | 25               | 3.3              | 100-C09               | 70               | 8                | LC1D09                | 70               | 7                |
| 9               | XTCE009B        | 25               | 3.3              | 100-C09               | 70               | 8                | LC1D09                | 70               | 7                |
| 12              | XTCE012B        | 25               | 3.3              | 100-C12               | 70               | 8                | LC1D12                | 70               | 7                |
| 15              | XTCE015B        | 25               | 3.3              | 100-C16               | 70               | 8                | LC1D18                | 70               | 7                |
| 18              | XTCE018C        | 58               | 6.5              | 100-C23               | 70               | 9                | LC1D18                | 70               | 7                |
| 25              | XTCE025C        | 58               | 6.5              | 100-C23               | 70               | 9                | LC1D25                | 70               | 7                |
| 32              | XTCE032C        | 58               | 6.5              | 100-C30               | 80               | 9                | LC1D32                | 70               | 7                |
| 40              | XTCE040D        | 154              | 14               | 100-C37               | 80               | 9                | LC1D40                | 245              | 26               |
| 50              | XTCE050D        | 154              | 14               | 100-C43               | 130              | 10               | LC1D50                | 245              | 26               |
| 65              | XTCE065D        | 154              | 14               | 100-C60               | 200              | 16               | LC1D65                | 245              | 26               |
| 72              | XTCE072D        | 154              | 14               | 100-C72               | 200              | 16               | LC1D80                | 245              | 26               |
| 80              | XTCE080F        | 372              | 37.1             | 100-C85               | 200              | 16               | LC1D80                | 245              | 26               |
| 95              | XTCE095F        | 328              | 22.6             | 100-D95               | 650              | 50               | LC1D95                | 245              | 26               |
| 115             | XTCE115G        | 170              | 3.1              | 100-D110              | 650              | 50               | LC1D115               | 350              | 6                |
| 150             | XTCE150G        | 170              | 3.1              | 100-D140              | 650              | 50               | LC1D150               | 350              | 6                |
| 170             | XTCE170G        | 170              | 3.1              | 100-D180              | 650              | 50               | LC1F185               | 970              | 66               |

**Table 8. Coil Power Consumption—AC Voltages 60 Hz (continued)**

| HP 460V | Eaton XT | Inrush VA | Sealed VA | Siemens® | Conventional |           | Electronic |           |
|---------|----------|-----------|-----------|----------|--------------|-----------|------------|-----------|
|         |          |           |           |          | Inrush VA    | Sealed VA | Inrush VA  | Sealed VA |
| 3       | XTCE007B | 25        | 3.3       | 3RT10 15 | 31.7         | 5.1       | —          | —         |
| 5       | XTCE009B | 25        | 3.3       | 3RT10 16 | 31.7         | 5.1       | —          | —         |
| 7.5     | XTCE012B | 25        | 3.3       | 3RT10 17 | 31.7         | 5.1       | —          | —         |
| 10      | XTCE015B | 25        | 3.3       | 3RT10 25 | 69           | 7.5       | —          | —         |
| 15      | XTCE025C | 58        | 6.5       | 3RT10 26 | 69           | 7.5       | —          | —         |
| 20      | XTCE032C | 58        | 6.5       | 3RT10 34 | 120          | 10.1      | —          | —         |
| 25      | XTCE040D | 154       | 14        | 3RT10 34 | 120          | 10.1      | —          | —         |
| 30      | XTCE040D | 154       | 14        | 3RT10 35 | 166          | 12.6      | —          | —         |
| 40      | XTCE050D | 154       | 14        | 3RT10 36 | 166          | 12.6      | —          | —         |
| 50      | XTCE065D | 154       | 14        | 3RT10 44 | 232          | 20        | —          | —         |
| 60      | XTCE080F | 372       | 37.1      | 3RT10 45 | 300          | 21        | —          | —         |
| 75      | XTCE095F | 328       | 22.6      | 3RT10 46 | 300          | 21        | —          | —         |
| 100     | XTCE115G | 170       | 3.1       | 3RT10 54 | 300          | 5.8       | 280        | 4.4       |
| 125     | XTCE150G | 170       | 3.1       | 3RT10 55 | 300          | 5.8       | 280        | 4.4       |

| AC-3 (A) | Eaton XT | Inrush VA | Sealed VA | Siemens  | Conventional |           | Electronic |           |
|----------|----------|-----------|-----------|----------|--------------|-----------|------------|-----------|
|          |          |           |           |          | Inrush VA    | Sealed VA | Inrush VA  | Sealed VA |
| 7        | XTCE007B | 25        | 3.3       | 3RT10 15 | 31.7         | 5.1       | —          | —         |
| 9        | XTCE009B | 25        | 3.3       | 3RT10 16 | 31.7         | 5.1       | —          | —         |
| 12       | XTCE012B | 25        | 3.3       | 3RT10 17 | 31.7         | 5.1       | —          | —         |
| 15       | XTCE015B | 25        | 3.3       | 3RT10 25 | 69           | 7.5       | —          | —         |
| 18       | XTCE018C | 58        | 6.5       | 3RT10 25 | 69           | 7.5       | —          | —         |
| 25       | XTCE025C | 58        | 6.5       | 3RT10 26 | 69           | 7.5       | —          | —         |
| 32       | XTCE032C | 58        | 6.5       | 3RT10 34 | 120          | 10.1      | —          | —         |
| 40       | XTCE040D | 154       | 14        | 3RT10 35 | 166          | 12.6      | —          | —         |
| 50       | XTCE050D | 154       | 14        | 3RT10 36 | 166          | 12.6      | —          | —         |
| 65       | XTCE065D | 154       | 14        | 3RT10 44 | 232          | 20        | —          | —         |
| 72       | XTCE072D | 154       | 14        | 3RT10 45 | 300          | 21        | —          | —         |
| 80       | XTCE080F | 372       | 37.1      | 3RT10 45 | 300          | 21        | —          | —         |
| 95       | XTCE095F | 328       | 22.6      | 3RT10 46 | 300          | 21        | —          | —         |
| 115      | XTCE115G | 170       | 3.1       | 3RT10 54 | 300          | 5.8       | 280        | 4.4       |
| 150      | XTCE150G | 170       | 3.1       | 3RT10 55 | 300          | 5.8       | 280        | 4.4       |
| 170      | XTCE170G | 170       | 3.1       | 3RT10 56 | 300          | 5.8       | 280        | 4.4       |



**Table 8. Coil Power Consumption—AC Voltages 60 Hz (continued)**

| <b>HP 460V</b>  | <b>Eaton XT</b> | <b>Inrush VA</b> | <b>Sealed VA</b> | <b>ABB</b> | <b>Inrush VA</b> | <b>Sealed VA</b> | <b>GE®</b> | <b>Inrush VA</b> | <b>Sealed VA</b> |
|-----------------|-----------------|------------------|------------------|------------|------------------|------------------|------------|------------------|------------------|
| 3               | XTCE007B        | 25               | 3.3              | A9-30      | 74               | 8                | CL00A3     | 45               | 6                |
| 5               | XTCE009B        | 25               | 3.3              | A9-30      | 74               | 8                | CL00A3     | 45               | 6                |
| 7.5             | XTCE012B        | 25               | 3.3              | A12-30     | 74               | 8                | CL01A3     | 45               | 6                |
| 10              | XTCE015B        | 25               | 3.3              | A16-30     | 74               | 8                | CL02A3     | 45               | 6                |
| 15              | XTCE025C        | 58               | 6.5              | A26-30     | 125              | 12               | CL25A3     | 45               | 6                |
| 20              | XTCE032C        | 58               | 6.5              | A26-30     | 125              | 12               | CL04A3     | 88               | 9                |
| 25              | XTCE040D        | 154              | 14               | A30-30     | 125              | 12               | CL45A3     | 88               | 9                |
| 30              | XTCE040D        | 154              | 14               | A40-30     | 125              | 12               | CL06A3     | 191              | 17               |
| 40              | XTCE050D        | 154              | 14               | A50-30     | 190              | 18               | CL07A3     | 191              | 17               |
| 50              | XTCE065D        | 154              | 14               | A63-30     | 190              | 18               | CL08A3     | 191              | 17               |
| 60              | XTCE080F        | 372              | 37.1             | A75-30     | 190              | 18               | CL09A3     | 191              | 17               |
| 75              | XTCE095F        | 328              | 22.6             | A110-30    | 410              | 27               | CL10A3     | 191              | 17               |
| 100             | XTCE115G        | 170              | 3.1              | A145-30    | 700              | 44               | CK75CE3    | 350              | 20               |
| 125             | XTCE150G        | 170              | 3.1              | A185-30    | 700              | 44               | CK08CE3    | 350              | 20               |
| <b>AC-3 (A)</b> | <b>Eaton XT</b> | <b>Inrush VA</b> | <b>Sealed VA</b> | <b>ABB</b> | <b>Inrush VA</b> | <b>Sealed VA</b> | <b>GE</b>  | <b>Inrush VA</b> | <b>Sealed VA</b> |
| 7               | XTCE007B        | 25               | 3.3              | A9-30      | 74               | 8                | CL00A3     | 45               | 6                |
| 9               | XTCE009B        | 25               | 3.3              | A9-30      | 74               | 8                | CL00A3     | 45               | 6                |
| 12              | XTCE012B        | 25               | 3.3              | A12-30     | 74               | 8                | CL01A3     | 45               | 6                |
| 15              | XTCE015B        | 25               | 3.3              | A16-30     | 74               | 8                | CL02A3     | 45               | 6                |
| 18              | XTCE018C        | 58               | 6.5              | A26-30     | 125              | 12               | CL02A3     | 45               | 6                |
| 25              | XTCE025C        | 58               | 6.5              | A26-30     | 125              | 12               | CL25A3     | 45               | 6                |
| 32              | XTCE032C        | 58               | 6.5              | A30-30     | 125              | 12               | CL04A3     | 88               | 9                |
| 40              | XTCE040D        | 154              | 14               | A40-30     | 125              | 12               | CL06A3     | 191              | 17               |
| 50              | XTCE050D        | 154              | 14               | A50-30     | 190              | 18               | CL06A3     | 191              | 17               |
| 65              | XTCE065D        | 154              | 14               | A63-30     | 190              | 18               | CL07A3     | 191              | 17               |
| 72              | XTCE072D        | 154              | 14               | A75-30     | 190              | 18               | CL08A3     | 191              | 17               |
| 80              | XTCE080F        | 372              | 37.1             | A75-30     | 190              | 18               | CL09A3     | 191              | 17               |
| 95              | XTCE095F        | 328              | 22.6             | A95-30     | 410              | 27               | CL10A3     | 191              | 17               |
| 115             | XTCE115G        | 170              | 3.1              | A110-30    | 410              | 27               | CK75CE3    | 350              | 20               |
| 150             | XTCE150G        | 170              | 3.1              | A145-30    | 700              | 44               | CK08CE3    | 350              | 20               |
| 170             | XTCE170G        | 170              | 3.1              | A185-30    | 700              | 44               | CK09BE3    | 425              | 20               |

**Table 9. Coil Power Consumption—24 Vdc**

| HP 460V | Eaton XT | Inrush W | Sealed W | Allen-Bradley | Conventional |          | Electronic |          |
|---------|----------|----------|----------|---------------|--------------|----------|------------|----------|
|         |          |          |          |               | Inrush W     | Sealed W | Inrush W   | Sealed W |
| 3       | XTCE007B | 3        | 3        | 100-C09       | 6.5          | 6.5      | 22         | 1.5      |
| 5       | XTCE009B | 3        | 3        | 100-C09       | 6.5          | 6.5      | 22         | 1.5      |
| 7.5     | XTCE012B | 4.5      | 4.5      | 100-C12       | 6.5          | 6.5      | 22         | 1.5      |
| 10      | XTCE015B | 4.5      | 4.5      | 100-C16       | 6.5          | 6.5      | 22         | 1.5      |
| 15      | XTCE025C | 12       | 0.5      | 100-C23       | 9.2          | 9.2      | 22         | 1.5      |
| 20      | XTCE032C | 12       | 0.5      | 100-C30       | 9.2          | 9.2      | 22         | 1.5      |
| 25      | XTCE040D | 24       | 0.5      | 100-C37       | 9.2          | 9.2      | 22         | 1.5      |
| 30      | XTCE040D | 24       | 0.5      | 100-C43       | 10.1         | 10.1     | 28         | 2.5      |
| 40      | XTCE050D | 24       | 0.5      | 100-C60       | 200          | 4.5      | —          | —        |
| 50      | XTCE065D | 24       | 0.5      | 100-C72       | 200          | 4.5      | —          | —        |
| 60      | XTCE080F | 90       | 1.3      | 100-C85       | 200          | 4.5      | —          | —        |
| 75      | XTCE095F | 90       | 1.3      | 100-D110      | 540          | 8        | —          | —        |
| 100     | XTCE115G | 149      | 2.1      | 100-D140      | 540          | 8        | —          | —        |
| 125     | XTCE150G | 149      | 2.1      | 100-D180      | 540          | 8        | —          | —        |

| AC-3 (A) | Eaton XT | Inrush W | Sealed W | Allen-Bradley | Conventional |          | Electronic |          |
|----------|----------|----------|----------|---------------|--------------|----------|------------|----------|
|          |          |          |          |               | Inrush W     | Sealed W | Inrush W   | Sealed W |
| 7        | XTCE007B | 3        | 3        | 100-C09       | 6.5          | 6.5      | 22         | 1.5      |
| 9        | XTCE009B | 3        | 3        | 100-C09       | 6.5          | 6.5      | 22         | 1.5      |
| 12       | XTCE012B | 4.5      | 4.5      | 100-C12       | 6.5          | 6.5      | 22         | 1.5      |
| 15       | XTCE015B | 4.5      | 4.5      | 100-C16       | 6.5          | 6.5      | 22         | 1.5      |
| 18       | XTCE018C | 12       | 0.5      | 100-C23       | 9.2          | 9.2      | 22         | 1.5      |
| 25       | XTCE025C | 12       | 0.5      | 100-C23       | 9.2          | 9.2      | 22         | 1.5      |
| 32       | XTCE032C | 12       | 0.5      | 100-C30       | 9.2          | 9.2      | 22         | 1.5      |
| 40       | XTCE040D | 24       | 0.5      | 100-C37       | 9.2          | 9.2      | 22         | 1.5      |
| 50       | XTCE050D | 24       | 0.5      | 100-C43       | 10.1         | 10.1     | 28         | 2.5      |
| 65       | XTCE065D | 24       | 0.5      | 100-C60       | 200          | 4.5      | —          | —        |
| 72       | XTCE072D | 24       | 0.5      | 100-C72       | 200          | 4.5      | —          | —        |
| 80       | XTCE080F | 90       | 1.3      | 100-C85       | 200          | 4.5      | —          | —        |
| 95       | XTCE095F | 90       | 1.3      | 100-D95       | 540          | 8        | —          | —        |
| 115      | XTCE115G | 149      | 2.1      | 100-D110      | 540          | 8        | —          | —        |
| 150      | XTCE150G | 149      | 2.1      | 100-D140      | 540          | 8        | —          | —        |
| 170      | XTCE170G | 149      | 2.1      | 100-D180      | 540          | 8        | —          | —        |

Table 9. Coil Power Consumption—24 Vdc (continued)

| HP 460V | Eaton XT | Inrush W | Sealed W | Telemecanique | Conventional (Ending in BD) |          |
|---------|----------|----------|----------|---------------|-----------------------------|----------|
|         |          |          |          |               | Inrush W                    | Sealed W |
| 3       | XTCE007B | 3        | 3        | LC1D09        | 5.4                         | 5.4      |
| 5       | XTCE009B | 3        | 3        | LC1D09        | 5.4                         | 5.4      |
| 7.5     | XTCE012B | 4.5      | 4.5      | LC1D12        | 5.4                         | 5.4      |
| 10      | XTCE015B | 4.5      | 4.5      | LC1D18        | 5.4                         | 5.4      |
| 15      | XTCE025C | 12       | 0.5      | LC1D25        | 5.4                         | 5.4      |
| 20      | XTCE032C | 12       | 0.5      | LC1D32        | 5.4                         | 5.4      |
| 25      | XTCE040D | 24       | 0.5      | LC1D40        | 22                          | 22       |
| 30      | XTCE040D | 24       | 0.5      | LC1D40        | 22                          | 22       |
| 40      | XTCE050D | 24       | 0.5      | LC1D50        | 22                          | 22       |
| 50      | XTCE065D | 24       | 0.5      | LC1D65        | 22                          | 22       |
| 60      | XTCE080F | 90       | 1.3      | LC1D80        | 22                          | 22       |
| 75      | XTCE095F | 90       | 1.3      | LC1D115       | 365                         | 5.1      |
| 100     | XTCE115G | 149      | 2.1      | LC1D150       | 365                         | 5.1      |
| 125     | XTCE150G | 149      | 2.1      | LC1F185       | 800                         | 5        |

| AC-3 (A) | Eaton XT | Inrush W | Sealed W | Telemecanique | Conventional (Ending in BD) |          |
|----------|----------|----------|----------|---------------|-----------------------------|----------|
|          |          |          |          |               | Inrush W                    | Sealed W |
| 7        | XTCE007B | 3        | 3        | LC1D09        | 5.4                         | 5.4      |
| 9        | XTCE009B | 3        | 3        | LC1D09        | 5.4                         | 5.4      |
| 12       | XTCE012B | 4.5      | 4.5      | LC1D12        | 5.4                         | 5.4      |
| 15       | XTCE015B | 4.5      | 4.5      | LC1D18        | 5.4                         | 5.4      |
| 18       | XTCE018C | 12       | 0.5      | LC1D18        | 5.4                         | 5.4      |
| 25       | XTCE025C | 12       | 0.5      | LC1D25        | 5.4                         | 5.4      |
| 32       | XTCE032C | 12       | 0.5      | LC1D32        | 5.4                         | 5.4      |
| 40       | XTCE040D | 24       | 0.5      | LC1D40        | 22                          | 22       |
| 50       | XTCE050D | 24       | 0.5      | LC1D50        | 22                          | 22       |
| 65       | XTCE065D | 24       | 0.5      | LC1D65        | 22                          | 22       |
| 72       | XTCE072D | 24       | 0.5      | LC1D80        | 22                          | 22       |
| 80       | XTCE080F | 90       | 1.3      | LC1D80        | 22                          | 22       |
| 95       | XTCE095F | 90       | 1.3      | LC1D95        | 22                          | 22       |
| 115      | XTCE115G | 149      | 2.1      | LC1D115       | 365                         | 5.1      |
| 150      | XTCE150G | 149      | 2.1      | LC1D150       | 365                         | 5.1      |
| 170      | XTCE170G | 149      | 2.1      | LC1F185       | 800                         | 5        |

**Table 9. Coil Power Consumption—24 Vdc (continued)**

| HP 460V | Eaton XT | Inrush W | Sealed W | Siemens  | Electronic |          | Conventional |          |
|---------|----------|----------|----------|----------|------------|----------|--------------|----------|
|         |          |          |          |          | Inrush W   | Sealed W | Inrush W     | Sealed W |
| 3       | XTCE007B | 3        | 3        | 3RT10 15 | 3.3        | 3.3      | —            | —        |
| 5       | XTCE009B | 3        | 3        | 3RT10 16 | 3.3        | 3.3      | —            | —        |
| 7.5     | XTCE012B | 4.5      | 4.5      | 3RT10 17 | 3.3        | 3.3      | —            | —        |
| 10      | XTCE015B | 4.5      | 4.5      | 3RT10 25 | 5.4        | 5.4      | —            | —        |
| 15      | XTCE025C | 12       | 0.5      | 3RT10 26 | 5.4        | 5.4      | —            | —        |
| 20      | XTCE032C | 12       | 0.5      | 3RT10 34 | 13.3       | 13.3     | —            | —        |
| 25      | XTCE040D | 24       | 0.5      | 3RT10 34 | 13.3       | 13.3     | —            | —        |
| 30      | XTCE040D | 24       | 0.5      | 3RT10 35 | 13.3       | 13.3     | —            | —        |
| 40      | XTCE050D | 24       | 0.5      | 3RT10 36 | 13.3       | 13.3     | —            | —        |
| 50      | XTCE065D | 24       | 0.5      | 3RT10 44 | 15         | 15       | —            | —        |
| 60      | XTCE080F | 90       | 1.3      | 3RT10 45 | 15         | 15       | —            | —        |
| 75      | XTCE095F | 90       | 1.3      | 3RT10 46 | 15         | 15       | —            | —        |
| 100     | XTCE115G | 149      | 2.1      | 3RT10 54 | 320        | 2.8      | 360          | 5.2      |
| 125     | XTCE150G | 149      | 2.1      | 3RT10 55 | 320        | 2.8      | 360          | 5.2      |

| AC-3 (A) | Eaton XT | Inrush W | Sealed W | Siemens  | Electronic |          | Conventional |          |
|----------|----------|----------|----------|----------|------------|----------|--------------|----------|
|          |          |          |          |          | Inrush W   | Sealed W | Inrush W     | Sealed W |
| 7        | XTCE007B | 3        | 3        | 3RT10 15 | 3.3        | 3.3      | —            | —        |
| 9        | XTCE009B | 3        | 3        | 3RT10 16 | 3.3        | 3.3      | —            | —        |
| 12       | XTCE012B | 4.5      | 4.5      | 3RT10 17 | 3.3        | 3.3      | —            | —        |
| 15       | XTCE015B | 4.5      | 4.5      | 3RT10 25 | 5.4        | 5.4      | —            | —        |
| 18       | XTCE018C | 12       | 0.5      | 3RT10 25 | 5.4        | 5.4      | —            | —        |
| 25       | XTCE025C | 12       | 0.5      | 3RT10 26 | 5.4        | 5.4      | —            | —        |
| 32       | XTCE032C | 12       | 0.5      | 3RT10 34 | 13.3       | 13.3     | —            | —        |
| 40       | XTCE040D | 24       | 0.5      | 3RT10 35 | 13.3       | 13.3     | —            | —        |
| 50       | XTCE050D | 24       | 0.5      | 3RT10 36 | 13.3       | 13.3     | —            | —        |
| 65       | XTCE065D | 24       | 0.5      | 3RT10 44 | 15         | 15       | —            | —        |
| 72       | XTCE072D | 24       | 0.5      | 3RT10 45 | 15         | 15       | —            | —        |
| 80       | XTCE080F | 90       | 1.3      | 3RT10 45 | 15         | 15       | —            | —        |
| 95       | XTCE095F | 90       | 1.3      | 3RT10 46 | 15         | 15       | —            | —        |
| 115      | XTCE115G | 149      | 2.1      | 3RT10 54 | 320        | 2.8      | 360          | 5.2      |
| 150      | XTCE150G | 149      | 2.1      | 3RT10 55 | 320        | 2.8      | 360          | 5.2      |
| 170      | XTCE170G | 149      | 2.1      | 3RT10 56 | 320        | 2.8      | 360          | 5.2      |

Table 9. Coil Power Consumption—24 Vdc (continued)

| HP 460V | Eaton XT | Inrush W | Sealed W | ABB      | Conventional |          |
|---------|----------|----------|----------|----------|--------------|----------|
|         |          |          |          |          | Inrush W     | Sealed W |
| 3       | XTCE007B | 3        | 3        | AE9-30   | 90           | 2        |
| 5       | XTCE009B | 3        | 3        | AE9-30   | 90           | 2        |
| 7.5     | XTCE012B | 4.5      | 4.5      | AE12-30  | 90           | 2        |
| 10      | XTCE015B | 4.5      | 4.5      | AE16-30  | 90           | 2        |
| 15      | XTCE025C | 12       | 0.5      | AE26-30  | 110          | 2.5      |
| 20      | XTCE032C | 12       | 0.5      | AE26-30  | 110          | 2.5      |
| 25      | XTCE040D | 24       | 0.5      | AE30-30  | 110          | 2.5      |
| 30      | XTCE040D | 24       | 0.5      | AE40-30  | 110          | 2.5      |
| 40      | XTCE050D | 24       | 0.5      | AE50-30  | 200          | 4        |
| 50      | XTCE065D | 24       | 0.5      | AE63-30  | 200          | 4        |
| 60      | XTCE080F | 90       | 1.3      | AE75-30  | 200          | 4        |
| 75      | XTCE095F | 90       | 1.3      | AE110-30 | 400          | 2.4      |
| 100     | XTCE115G | 149      | 2.1      | AF145-30 | 500          | 2        |
| 125     | XTCE150G | 149      | 2.1      | AF185-30 | 500          | 2        |

| AC-3 (A) | Eaton XT | Inrush W | Sealed W | ABB      | Conventional |          |
|----------|----------|----------|----------|----------|--------------|----------|
|          |          |          |          |          | Inrush W     | Sealed W |
| 7        | XTCE007B | 3        | 3        | AE9-30   | 90           | 2        |
| 9        | XTCE009B | 3        | 3        | AE9-30   | 90           | 2        |
| 12       | XTCE012B | 4.5      | 4.5      | AE12-30  | 90           | 2        |
| 15       | XTCE015B | 4.5      | 4.5      | AE16-30  | 90           | 2        |
| 18       | XTCE018C | 12       | 0.5      | AE26-30  | 110          | 2.5      |
| 25       | XTCE025C | 12       | 0.5      | AE26-30  | 110          | 2.5      |
| 32       | XTCE032C | 12       | 0.5      | AE30-30  | 110          | 2.5      |
| 40       | XTCE040D | 24       | 0.5      | AE40-30  | 110          | 2.5      |
| 50       | XTCE050D | 24       | 0.5      | AE50-30  | 200          | 4        |
| 65       | XTCE065D | 24       | 0.5      | AE63-30  | 200          | 4        |
| 72       | XTCE072D | 24       | 0.5      | AE75-30  | 200          | 4        |
| 80       | XTCE080F | 90       | 1.3      | AE75-30  | 200          | 4        |
| 95       | XTCE095F | 90       | 1.3      | AE95-30  | 400          | 2.4      |
| 115      | XTCE115G | 149      | 2.1      | AE110-30 | 400          | 2.4      |
| 150      | XTCE150G | 149      | 2.1      | AF145-30 | 500          | 2        |
| 170      | XTCE170G | 149      | 2.1      | AF185-30 | 500          | 2        |

**Table 9. Coil Power Consumption—24 Vdc (continued)**

| <b>HP 460V</b>  | <b>Eaton XT</b> | <b>Inrush W</b> | <b>Sealed W</b> | <b>GE</b> | <b>Inrush W</b> | <b>Sealed W</b> |
|-----------------|-----------------|-----------------|-----------------|-----------|-----------------|-----------------|
| 3               | XTCE007B        | 3               | 3               | CL00D3    | 5.5             | 5.5             |
| 5               | XTCE009B        | 3               | 3               | CL00D3    | 5.5             | 5.5             |
| 7.5             | XTCE012B        | 4.5             | 4.5             | CL01D3    | 5.5             | 5.5             |
| 10              | XTCE015B        | 4.5             | 4.5             | CL02D3    | 5.5             | 5.5             |
| 15              | XTCE025C        | 12              | 0.5             | CL25D3    | 5.5             | 5.5             |
| 20              | XTCE032C        | 12              | 0.5             | CL04D3    | 7.5             | 7.5             |
| 25              | XTCE040D        | 24              | 0.5             | CL45D3    | 7.5             | 7.5             |
| 30              | XTCE040D        | 24              | 0.5             | CL06E3    | 125             | 2.5             |
| 40              | XTCE050D        | 24              | 0.5             | CL07E3    | 125             | 2.5             |
| 50              | XTCE065D        | 24              | 0.5             | CL08E3    | 125             | 2.5             |
| 60              | XTCE080F        | 90              | 1.3             | CL09E3    | 125             | 2.5             |
| 75              | XTCE095F        | 90              | 1.3             | CL10E3    | 125             | 2.5             |
| 100             | XTCE115G        | 149             | 2.1             | CK75CE3   | 202             | 12              |
| 125             | XTCE150G        | 149             | 2.1             | CK08CE3   | 202             | 12              |
| <b>AC-3 (A)</b> | <b>Eaton XT</b> | <b>Inrush W</b> | <b>Sealed W</b> | <b>GE</b> | <b>Inrush W</b> | <b>Sealed W</b> |
| 7               | XTCE007B        | 3               | 3               | CL00D3    | 5.5             | 5.5             |
| 9               | XTCE009B        | 3               | 3               | CL00D3    | 5.5             | 5.5             |
| 12              | XTCE012B        | 4.5             | 4.5             | CL01D3    | 5.5             | 5.5             |
| 15              | XTCE015B        | 4.5             | 4.5             | CL02D3    | 5.5             | 5.5             |
| 18              | XTCE018C        | 12              | 0.5             | CL02D3    | 5.5             | 5.5             |
| 25              | XTCE025C        | 12              | 0.5             | CL25D3    | 5.5             | 5.5             |
| 32              | XTCE032C        | 12              | 0.5             | CL04D3    | 7.5             | 7.5             |
| 40              | XTCE040D        | 24              | 0.5             | CL06E3    | 125             | 2.5             |
| 50              | XTCE050D        | 24              | 0.5             | CL06E3    | 125             | 2.5             |
| 65              | XTCE065D        | 24              | 0.5             | CL07E3    | 125             | 2.5             |
| 72              | XTCE072D        | 24              | 0.5             | CL08E3    | 125             | 2.5             |
| 80              | XTCE080F        | 90              | 1.3             | CL09E3    | 125             | 2.5             |
| 95              | XTCE095F        | 90              | 1.3             | CL10E3    | 125             | 2.5             |
| 115             | XTCE115G        | 149             | 2.1             | CK75CE3   | 202             | 12              |
| 150             | XTCE150G        | 149             | 2.1             | CK08CE3   | 202             | 12              |
| 170             | XTCE170G        | 149             | 2.1             | CK09BE3   | 246             | 12              |

### Control power transformer sizing sheets

Use the following tables to calculate CPT size with **XT** versus the competition.

**Table 10. Control Power Transformer Sizing Sheet A**

| Control Panel with present motor control                                   |             |     |                  |                  |                    |                    |
|----------------------------------------------------------------------------|-------------|-----|------------------|------------------|--------------------|--------------------|
| Part Number                                                                | Description | Qty | Inrush VA<br>ea. | Sealed VA<br>ea. | Total<br>Inrush VA | Total Sealed<br>VA |
|                                                                            |             |     |                  |                  |                    | <b>TOTAL</b>       |
| CPT INRUSH VA = $\sqrt{(\text{Total Inrush})^2 + (\text{Total Sealed})^2}$ |             |     |                  |                  |                    |                    |
| CPT INRUSH VA = _____                                                      |             |     |                  |                  |                    |                    |
| CPT VA Size = _____                                                        |             |     |                  |                  |                    |                    |

**Table 11. Control Power Transformer Sizing Sheet B**

| Control Panel using Eaton XT                                               |             |     |                  |                  |                    |                    |
|----------------------------------------------------------------------------|-------------|-----|------------------|------------------|--------------------|--------------------|
| Part Number                                                                | Description | Qty | Inrush VA<br>ea. | Sealed VA<br>ea. | Total<br>Inrush VA | Total Sealed<br>VA |
|                                                                            |             |     |                  |                  |                    | <b>TOTAL</b>       |
| CPT INRUSH VA = $\sqrt{(\text{Total Inrush})^2 + (\text{Total Sealed})^2}$ |             |     |                  |                  |                    |                    |
| CPT INRUSH VA = _____                                                      |             |     |                  |                  |                    |                    |
| CPT VA Size = _____                                                        |             |     |                  |                  |                    |                    |

### Power supply sizing sheets

Use the following tables to calculate power supply size with **XT** versus the competition.

**Table 12. Power Supply Sizing Sheet A**

| Control Panel with present motor control |             |     |                 |                 |                   |                   |                           |                             |
|------------------------------------------|-------------|-----|-----------------|-----------------|-------------------|-------------------|---------------------------|-----------------------------|
| Part Number                              | Description | Qty | Inrush W<br>ea. | Sealed W<br>ea. | Total Inrush<br>W | Total Sealed<br>W | Total Inrush<br>(Surge) A | Total Sealed<br>(Nominal) A |
|                                          |             |     |                 |                 |                   |                   |                           | <b>TOTAL</b>                |
| Power Supply Size = _____                |             |     |                 |                 |                   |                   |                           |                             |

**Table 13. Power Supply Sizing Sheet B**

| Control Panel using Eaton XT |             |     |                 |                 |                   |                   |                           |                             |
|------------------------------|-------------|-----|-----------------|-----------------|-------------------|-------------------|---------------------------|-----------------------------|
| Part Number                  | Description | Qty | Inrush W<br>ea. | Sealed W<br>ea. | Total Inrush<br>W | Total Sealed<br>W | Total Inrush<br>(Surge) A | Total Sealed<br>(Nominal) A |
|                              |             |     |                 |                 |                   |                   |                           | <b>TOTAL</b>                |
| Power Supply Size = _____    |             |     |                 |                 |                   |                   |                           |                             |

**Eaton Corporation**  
 Electrical Sector  
 1111 Superior Ave.  
 Cleveland, OH 44114  
 United States  
 877-ETN-CARE (877-386-2273)  
 Eaton.com

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# Reducing sizes of control power transformers and power supplies with Eaton's *XT* IEC motor control



**XT** Starter with XTOB Thermal OL



**XT** Manual Motor Controller

## Contents

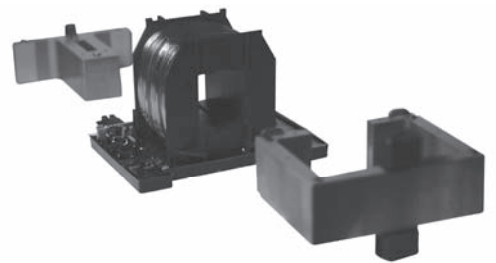
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## Introduction

Reducing costs is necessary for OEMs to maintain a competitive edge. Eaton's line of IEC motor starters was designed with enhanced features and benefits that help OEMs reduce material costs while improving reliability, installation, usability, and safety.

The newest line of Eaton's IEC motor starters includes new innovations in coil design, yielding greater pickup tolerances while reducing energy consumption. In many common scenarios where the control panel contains three contactors or more, switching to the Eaton **XT** contactor from another contactor line typically allows users to reduce their control power transformer or power supply by at least one size, with greater likelihood of larger reductions as more contactors are added to the control panel.

This application note explains how control power transformers and power supplies are sized. Coil consumption tables for Eaton **XT** and competitive lines are provided in **Tables 7** and **Table 8**. A CPT/power supply calculation sheet is provided at the end of this document.



Electronic Coil and Magnet Armature



*Powering Business Worldwide*

**How to size a control power transformer (CPT)**

CPTs are most commonly identified by their nominal, steady-state VA capacity, but they also have a maximum rating describing the amount of inrush they can support on the secondary. Some loads, such as relay coils or contactor coils, require a temporary spike in power once power is applied. Then after the contacts have been pulled in, very little power is needed to hold the contacts closed. Other devices, such as pilot lights, consume the same amount of energy when power is first applied through to continued operation. CPTs should be selected to ensure enough power is available on the secondary side to handle the inrush power needs of the loads the CPT supplies. Each CPT has a maximum inrush power rating. This inrush VA is the critical rating used to size CPTs. This value is determined using the following formula:

$$\text{CPT INRUSH VA} = \sqrt{(\text{Total Inrush})^2 + (\text{Total Sealed})^2}$$

**Example**

A control panel contains qty (1) 7A contactor, qty (2) 18A contactors, qty (2) relays, and qty (6) indicating lights. These loads are supplied 120 Vac from a CPT with a 480 Vac primary. Determine the CPT size needed.

where "Total Inrush" is the total sum of all the inrush power of the loads applied to the CPT, and "Sealed Inrush" is the total sum of all the sealed power of the loads applied to the CPT.

Once the Inrush power requirement on the CPT has been determined, the CPT is sized from the selection chart using either the 85%, 90%, or 95% secondary voltage. This means that the secondary voltage of the CPT will not dip below the respective percentage provided that the inrush power put on the CPT doesn't exceed the inrush power from the selection chart. 90% or 95% is mostly recommended, as exceeding the inrush power rating of the CPT could lead to a deeper decrease in coil voltage on the secondary, which could cause the contactor and relay coils or other devices to prematurely fail.

In this example, the CPT needs to be able to provide 250 VA to support the inrush demand of the loads. The C0075E2A has enough inrush VA capacity to support these loads.

**Table 1. Example Calculating CPT Inrush Demand**

| Qty   | Description       | Inrush VA | Sealed VA | Total Inrush | Total Sealed |
|-------|-------------------|-----------|-----------|--------------|--------------|
| 1     | XTCE007B10A coil  | 25        | 3.3       | 25           | 3.3          |
| 2     | XTCE018C10A coil  | 58        | 6.5       | 116          | 13.0         |
| 2     | Relays            | 29        | 3.3       | 58           | 6.6          |
| 6     | Indicating lights | 7         | 7.0       | 42           | 42.0         |
| Total |                   |           |           | 241          | 65           |

$$\begin{aligned} \text{CPT INRUSH VA} &= \sqrt{(241)^2 + (65)^2} \\ &= 250 \text{ VA} \end{aligned}$$

**Table 2. Example CPT Selection Chart**

| Part Number | Primary Voltage | Secondary Voltage | Transformer VA | Inrush VA (90% Secondary Inrush Voltage) |
|-------------|-----------------|-------------------|----------------|------------------------------------------|
| C0050E2A    | 240 x 480       | 120               | 50             | 200                                      |
| C0075E2A    | 240 x 480       | 120               | 75             | 410                                      |
| C0100E2A    | 240 x 480       | 120               | 100            | 540                                      |

C0075E2A has enough inrush VA capacity to handle the 250 VA inrush of the components.

**Note:** See Table 4 for CPT selection charts for a variety of primary and secondary voltages.

**How to size a power supply**

Power supplies are sized based on the amount of inrush (surge) and sealed (nominal or steady-state) power demands of the loads applied to the power supply. The respective loads are calculated by simply summing the loads, both for inrush and sealed.

The power supply is selected based on these calculated demands on the power supply, and any other load specifications for the respective power supply, such as minimum time allotment between surges (inrush). Always be sure to verify proper application per the power supply specifications.

$$\text{Inrush load} = \text{inrush load}_1 + \text{inrush load}_2 + \dots + \text{inrush load}_n$$

$$\text{Nominal load} = \text{sealed load}_1 + \text{sealed load}_2 + \dots + \text{sealed load}_n$$

For extended operational life of the power supply, increase the calculated nominal load by 20%.

**Example**

Select a 24 Vdc power supply for a control panel containing qty (8) 7A contactors, qty (4) 18A contactors, qty (2) relays, and qty (5) indicating lights.

In this example, the PSG60E has enough capacity to handle the surge (inrush) and nominal (steady-state) demand of the loads.

$$\text{Current} = \text{Power/Voltage}$$

**Table 3. Calculating Demand on Power Supply**

| Quantity | Description       | Inrush W | Sealed W | Surge Current | Nominal Current | Total Surge Current | Total Nominal Current |
|----------|-------------------|----------|----------|---------------|-----------------|---------------------|-----------------------|
| 8        | XTCE007B10TD coil | 3        | 3        | 0.125         | 0.13            | 1.00                | 1.00                  |
| 4        | XTCE018C10TD coil | 12       | 0.5      | 0.50          | 0.02            | 2.00                | 0.08                  |
| 2        | Relay             | 2.6      | 2.6      | 0.11          | 0.11            | 0.22                | 0.22                  |
| 5        | Indicating light  | 1.2      | 1.2      | 0.05          | 0.05            | 0.25                | 0.25                  |
| Total    |                   |          |          |               |                 | 3.47 A              | 1.55 A                |

Derating for extended operation: Total nominal current = 1.55 x 120% = **1.86**

**Table 4. Example Power Supply Selection Chart**

| Part Number | Capacity W | Input Voltage             | Output Voltage | Surge Current | Nominal Current | Surge Capacity      |
|-------------|------------|---------------------------|----------------|---------------|-----------------|---------------------|
| PSG60E      | 60         | 100–240 Vac, single-phase | 24 Vdc         | 3.75A         | 2.5A            | 1s at 10s intervals |
| PSG120E     | 120        | 100–240 Vac, single-phase | 24 Vdc         | 7.5A          | 5A              | 1s at 10s intervals |
| PSG240E     | 240        | 100–240 Vac, single-phase | 24 Vdc         | 15A           | 10A             | 1s at 10s intervals |

PSG60E has enough nominal and surge current capacity for these components.

**Note:** See **Table 5** and **Table 6** for power supply selection charts for various Eaton power supplies.

## Control power transformer selection



Table 5. Type MTE—Product Selection

| Transformer VA                                                                                                                                                                         | Dimensions (Inches) |       |        | Weight (Lbs) | Inrush VA at 20% Power Factor (Secondary Voltage) |       |       | Part Number |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------|--------|--------------|---------------------------------------------------|-------|-------|-------------|
|                                                                                                                                                                                        | Height              | Width | Depth  |              | 95%                                               | 90%   | 85%   |             |
| <b>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</b>                                                          |                     |       |        |              |                                                   |       |       |             |
| 25                                                                                                                                                                                     | 2-9/16              | 3     | 2-1/2  | 1.7          | 100                                               | 130   | 150   | C0025E2A    |
| 50                                                                                                                                                                                     | 2-9/16              | 3     | 3      | 2.6          | 170                                               | 200   | 240   | C0050E2A    |
| 75                                                                                                                                                                                     | 2-9/16              | 3     | 3-1/2  | 3.5          | 310                                               | 410   | 540   | C0075E2A    |
| 100                                                                                                                                                                                    | 2-7/8               | 3-3/8 | 3-3/8  | 4.2          | 370                                               | 540   | 730   | C0100E2A    |
| 150                                                                                                                                                                                    | 3-3/16              | 3-3/4 | 4      | 6.7          | 780                                               | 930   | 1150  | C0150E2A    |
| 200                                                                                                                                                                                    | 3-13/16             | 4-1/2 | 4      | 8.5          | 810                                               | 1150  | 1450  | C0200E2A    |
| 250                                                                                                                                                                                    | 3-13/16             | 4-1/2 | 4-3/8  | 10           | 1400                                              | 1900  | 2300  | C0250E2A    |
| 300                                                                                                                                                                                    | 3-13/16             | 4-1/2 | 4-3/4  | 11.3         | 1900                                              | 2700  | 3850  | C0300E2A    |
| 350                                                                                                                                                                                    | 3-13/16             | 4-1/2 | 5-1/4  | 13.6         | 3100                                              | 3650  | 4800  | C0350E2A    |
| 500                                                                                                                                                                                    | 4-3/4               | 5-1/4 | 5-1/2  | 19.2         | 4000                                              | 5300  | 7000  | C0500E2A    |
| 750                                                                                                                                                                                    | 4-3/4               | 5-1/4 | 7      | 28.1         | 8300                                              | 11000 | 14000 | C0750E2A    |
| 1000                                                                                                                                                                                   | 5-11/16             | 6-3/4 | 6-7/16 | 29.5         | 15000                                             | 21000 | 27000 | C1000E2A    |
| <b>Primary: 240 x 480 with jumpers / Secondary: 24 with fuse clips for 13/32 x 1-1/2 fuses (through 500 VA)</b>                                                                        |                     |       |        |              |                                                   |       |       |             |
| 50                                                                                                                                                                                     | 2-9/16              | 3     | 3      | 2.7          | 170                                               | 200   | 240   | C0050E2B    |
| 75                                                                                                                                                                                     | 2-9/16              | 3     | 3-1/2  | 3.5          | 310                                               | 410   | 540   | C0075E2B    |
| 100                                                                                                                                                                                    | 2-7/8               | 3-3/8 | 3-3/8  | 4.2          | 370                                               | 540   | 730   | C0100E2B    |
| 150                                                                                                                                                                                    | 3-3/16              | 3-3/4 | 4      | 6.7          | 780                                               | 930   | 1150  | C0150E2B    |
| 200                                                                                                                                                                                    | 3-13/16             | 4-1/2 | 4      | 8.5          | 810                                               | 1150  | 1450  | C0200E2B    |
| 250                                                                                                                                                                                    | 3-13/16             | 4-1/2 | 4-3/8  | 10.1         | 1400                                              | 1900  | 2300  | C0250E2B    |
| 300                                                                                                                                                                                    | 3-13/16             | 4-1/2 | 4-3/4  | 11.4         | 1900                                              | 2700  | 3850  | C0300E2B    |
| 350                                                                                                                                                                                    | 3-13/16             | 4-1/2 | 5-1/4  | 13.4         | 3100                                              | 3650  | 4800  | C0350E2B    |
| 500                                                                                                                                                                                    | 4-3/4               | 5-1/4 | 5-5/8  | 17.5         | 4000                                              | 5300  | 7000  | C0500E2B    |
| 750                                                                                                                                                                                    | 4-3/4               | 5-1/4 | 7      | 28.1         | 8300                                              | 11000 | 14000 | C0750E2B    |
| <b>Primary: 550/575/600 / Secondary: 110/115/120 with for 13/32 x 1-1/2 fuses</b>                                                                                                      |                     |       |        |              |                                                   |       |       |             |
| 50                                                                                                                                                                                     | 2-9/16              | 3     | 3      | 2.7          | 170                                               | 200   | 240   | C0050E4C    |
| 75                                                                                                                                                                                     | 2-9/16              | 3     | 3-1/2  | 3.6          | 310                                               | 410   | 540   | C0075E4C    |
| 100                                                                                                                                                                                    | 2-7/8               | 3-3/8 | 3-3/8  | 4.2          | 370                                               | 540   | 730   | C0100E4C    |
| 150                                                                                                                                                                                    | 3-3/16              | 3-3/4 | 4      | 6.8          | 780                                               | 930   | 1150  | C0150E4C    |
| 200                                                                                                                                                                                    | 3-13/16             | 4-1/2 | 4      | 8.4          | 810                                               | 1150  | 1450  | C0200E4C    |
| 250                                                                                                                                                                                    | 3-13/16             | 4-1/2 | 4-3/8  | 10           | 1400                                              | 1900  | 2300  | C0250E4C    |
| 300                                                                                                                                                                                    | 3-13/16             | 4-1/2 | 4-3/4  | 11.3         | 1900                                              | 2700  | 3850  | C0300E4C    |
| 350                                                                                                                                                                                    | 3-13/16             | 4-1/2 | 5-1/4  | 13.6         | 3100                                              | 3650  | 4800  | C0350E4C    |
| 500                                                                                                                                                                                    | 4-3/4               | 5-1/4 | 5-3/8  | 16.8         | 4000                                              | 5300  | 7000  | C0500E4C    |
| 750                                                                                                                                                                                    | 4-3/4               | 5-1/4 | 7      | 25.7         | 8300                                              | 11000 | 14000 | C0750E4C    |
| <b>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</b> |                     |       |        |              |                                                   |       |       |             |
| 50                                                                                                                                                                                     | 3-15/16             | 3     | 3      | 2.8          | 170                                               | 200   | 240   | C0050E2AFB  |
| 75                                                                                                                                                                                     | 3-15/16             | 3     | 3-1/2  | 3.7          | 310                                               | 410   | 540   | C0075E2AFB  |
| 100                                                                                                                                                                                    | 4-1/4               | 3-3/8 | 3-3/8  | 4.4          | 370                                               | 540   | 730   | C0100E2AFB  |
| 150                                                                                                                                                                                    | 4-9/16              | 3-3/4 | 4      | 6.9          | 780                                               | 930   | 1150  | C0150E2AFB  |
| 200                                                                                                                                                                                    | 5-3/16              | 4-1/2 | 4      | 8.7          | 810                                               | 1150  | 1450  | C0200E2AFB  |
| 250                                                                                                                                                                                    | 5-3/16              | 4-1/2 | 4-3/8  | 10.2         | 1400                                              | 1900  | 2300  | C0250E2AFB  |
| 300                                                                                                                                                                                    | 5-3/16              | 4-1/2 | 4-3/4  | 11.5         | 1900                                              | 2700  | 3850  | C0300E2AFB  |
| 350                                                                                                                                                                                    | 5-3/16              | 4-1/2 | 5-1/4  | 13.8         | 3100                                              | 3650  | 4800  | C0350E2AFB  |
| 500                                                                                                                                                                                    | 6-1/8               | 5-1/4 | 5-1/2  | 19.4         | 4000                                              | 5300  | 7000  | C0500E2AFB  |
| 750                                                                                                                                                                                    | 6-1/8               | 5-1/4 | 7      | 28.3         | 8300                                              | 11000 | 14000 | C0750E2AFB  |
| 1000                                                                                                                                                                                   | 7-1/16              | 6-3/4 | 6-7/16 | 29.7         | 15000                                             | 21000 | 27000 | C1000E2AFB  |
| <b>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</b>                                |                     |       |        |              |                                                   |       |       |             |
| 50                                                                                                                                                                                     | 3-15/16             | 3     | 3      | 2.8          | 170                                               | 200   | 240   | C0050E2BFB  |
| 75                                                                                                                                                                                     | 3-15/16             | 3     | 3-1/2  | 3.8          | 310                                               | 410   | 540   | C0075E2BFB  |
| 100                                                                                                                                                                                    | 4-1/4               | 3-3/8 | 3-3/8  | 4.4          | 370                                               | 540   | 730   | C0100E2BFB  |
| 150                                                                                                                                                                                    | 4-9/16              | 3-3/4 | 4      | 6.9          | 780                                               | 930   | 1150  | C0150E2BFB  |
| 200                                                                                                                                                                                    | 5-3/16              | 4-1/2 | 4      | 8.7          | 810                                               | 1150  | 1450  | C0200E2BFB  |
| 250                                                                                                                                                                                    | 5-3/16              | 4-1/2 | 4-3/8  | 10.3         | 1400                                              | 1900  | 2300  | C0250E2BFB  |
| 300                                                                                                                                                                                    | 5-3/16              | 4-1/2 | 4-3/4  | 11.6         | 1900                                              | 2700  | 3850  | C0300E2BFB  |
| 350                                                                                                                                                                                    | 5-3/16              | 4-1/2 | 5-1/4  | 13.6         | 3100                                              | 3650  | 4800  | C0350E2BFB  |
| 500                                                                                                                                                                                    | 6-1/8               | 5-1/4 | 5-5/8  | 17.7         | 4000                                              | 5300  | 7000  | C0500E2BFB  |

## Power supply selection



Table 6. PSG Power Supply Selection

|                                                    | PSG60E           | PSG120E          | PSG240E          | PSG480E          | PSG60F                                     | PSG120F                                    | PSG240F                                    | PSG480F                                    |
|----------------------------------------------------|------------------|------------------|------------------|------------------|--------------------------------------------|--------------------------------------------|--------------------------------------------|--------------------------------------------|
| Capacity                                           | 60W              | 120W             | 240W             | 480W             | 60W                                        | 120W                                       | 240W                                       | 480W                                       |
| <b>Input</b>                                       |                  |                  |                  |                  |                                            |                                            |                                            |                                            |
| Nominal voltage                                    | 100–240 Vac      | 100–240 Vac      | 100–240 Vac      | 100–240 Vac      | 3 x 400–500 Vac                            | 3 x 400–500 Vac                            | 3 x 400–500 Vac                            | 3 x 400–500 Vac                            |
| Voltage range                                      | 85–264 Vac ②     | 85–264 Vac ②     | 85–264 Vac ②     | 85–264 Vac ②     | 320–575 Vac ③                              | 320–575 Vac ③                              | 320–575 Vac ③                              | 320–575 Vac ③                              |
| Frequency                                          | 47–63 Hz ④       | 47–63 Hz ④       | 47–63 Hz ④       | 47–63 Hz ④       | 47–63 Hz ④                                 | 47–63 Hz ④                                 | 47–63 Hz ④                                 | 47–63 Hz ④                                 |
| Nominal current ①                                  | 1.1A             | 1.4A             | 2.9A             | 5.7A             | 0.3A                                       | 0.5A                                       | 0.8A                                       | 1.6A                                       |
| Inrush current limitation ①                        | 30A              | <80A             | N/A              | N/A              | <30A                                       | <30A                                       | <40A                                       | <50A                                       |
| Mains buffering at nominal load (typ.) ①           | >20 ms           | >35 ms           | >20 ms           | >20 ms           | >30 ms                                     | >35 ms                                     | >35 ms                                     | >20 ms                                     |
| Turn-on time                                       | <2.5 sec         | <1 sec           | <1 sec           | <1 sec           | <2 sec                                     | <1 sec                                     | <1 sec                                     | <1 sec                                     |
| Internal fuse                                      | T3.15 AH/250V    | T3.15 AH/250V    | T6.3AH/250V      | F10H/250V        | 3.15AH/500V                                | 3.15AH/500V                                | 3.15AH/500V                                | 3.15AH/500V                                |
| External fusing                                    | 6A, 10A, or 16A  | 6A, 10A, or 16A  | 10A or 16A       | 10A or 16A       | ⑤                                          | ⑤                                          | ⑤                                          | ⑤                                          |
| Leakage current                                    | <1 mA            | <1 mA            | <3.5 mA          | <1 mA            | <3.5 mA                                    | <3.5 mA                                    | <3.5 mA                                    | <3.5 mA                                    |
| <b>Output</b>                                      |                  |                  |                  |                  |                                            |                                            |                                            |                                            |
| Nominal output voltage                             | 24 Vdc ±2%       | 24 Vdc ±2%       | 24 Vdc ±2%       | 24 Vdc ±2%       | 24 Vdc ±2%                                 | 24 Vdc ±2%                                 | 24 Vdc ±2%                                 | 24 Vdc ±2%                                 |
| Adjustment range                                   | 22–28 Vdc        | 22–28 Vdc        | 22–28 Vdc        | 22–28 Vdc        | 22–28 Vdc                                  | 22–28 Vdc                                  | 22–28 Vdc                                  | 22–28 Vdc                                  |
| Nominal current                                    | <b>2.5A</b>      | <b>5A</b>        | <b>10A</b>       | <b>20A</b>       | <b>2.5A</b>                                | <b>5A</b>                                  | <b>10A</b>                                 | <b>20A</b>                                 |
| Startup with capacitive loads                      | Max. 8000 µF     | Max. 10,000 µF   | Max. 10,000 µF   | Max. 10,000 µF   | Max. 10,000 µF                             | Max. 10,000 µF                             | Max. 10,000 µF                             | Max. 10,000 µF                             |
| Max. power dissipation idling/nominal load approx. | 10W              | 22.5W            | 42.5W            | 72W              | 9W                                         | 18W                                        | 36W                                        | 72W                                        |
| Efficiency (at 400 Vac and nominal values)         | >85% typ         | >84% typ         | >84% typ         | >86% typ         | >86% at 3 x 400 Vac<br>>85% at 3 x 500 Vac | >86% at 3 x 400 Vac<br>>85% at 3 x 500 Vac | >87% at 3 x 400 Vac<br>>86% at 3 x 500 Vac | >87% at 3 x 400 Vac<br>>86% at 3 x 500 Vac |
| Current surge (at 24 Vdc)                          | <b>3.75A</b>     | <b>7.5A</b>      | <b>15A</b>       | <b>30A</b>       | <b>3.75A</b>                               | <b>7.5A</b>                                | <b>15A</b>                                 | <b>30A</b>                                 |
| Current surge time/cycle                           | 1s ⑥             | 1s ⑥             | 1s ⑥             | 1s ⑥             | 1s ⑥                                       | 1s ⑥                                       | 1s ⑥                                       | 1s ⑥                                       |
| Residual ripple/peak switching (20 MHz)            | <50 mV/<240 mVpp | <50 mV/<240 mVpp | <50 mV/<240 mVpp | <50 mV/<240 mVpp | <50 mV/<240 mVpp                           | <50 mV/<240 mVpp                           | <50 mV/<240 mVpp                           | <50 mV/<240 mVpp                           |
| Parallel operation                                 | With oring diode | With oring diode | With oring diode | With oring diode | With oring diode                           | With oring diode                           | With oring diode                           | With oring diode                           |

① Ratings for single-phase models are at 115 Vac; three-phase models are at 400 Vac.

② DC input range 120–375 Vdc.

③ DC input range 450–800 Vdc.

④ 0 Hz at DC input.

⑤ 3 x circuit breakers 6A, 10A, or 16A.

⑥ At 10-second intervals.



Table 7. PSS Power Supply Selection

|                         | <b>PSS10E</b>                     | <b>PSS10F</b>                     | <b>PSS25E</b>                     | <b>PSS25F</b>                     | <b>PSS55A</b>                     | <b>PSS55B</b>                     | <b>PSS55C</b>                     | <b>PSS55D</b>            |
|-------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|--------------------------|
| <b>Capacity</b>         | <b>10W</b>                        | <b>10W</b>                        | <b>25W</b>                        | <b>25W</b>                        | <b>55W</b>                        | <b>55W</b>                        | <b>55W</b>                        | <b>55W</b>               |
| <b>Input</b>            |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                          |
| Voltage                 | 110–240 Vac                       | 380–480 Vac                       | 110–240 Vac                       | 380–480 Vac                       | 115 Vac                           | 230 Vac                           | 380–480 Vac three-phase           | 480–600 Vac three-phase  |
| Input current (rms)     | 0.19A                             | 0.1A                              | 0.45A                             | 0.17A                             | 0.9A                              | 0.54A                             | 0.20A/phase                       | 0.07A/phase              |
| Frequency               | 47–63 Hz                          | 47–63 Hz                          | 47–63 Hz                          | 47–63 Hz                          | 47–63 Hz                          | 47–63 Hz                          | 47–63 Hz                          | 47–63 Hz                 |
| Voltage range           | ±10%                              | ±10%                              | ±10%                              | ±10%                              | ±15%                              | ±15%                              | ±10%                              | ±15%                     |
| Inrush current          | 25A                               | 25A                               | 35A                               | 35A                               | 16A                               | 32A                               | 15A                               | 15A                      |
| Overvoltage             | 330 Vac                           | 550 Vac                           | 330 Vac                           | 550 Vac                           | Varistor                          | Varistor                          | Varistor                          | Varistor                 |
| Internal input fuse     | T2A at 250V                       | T2A at 250V                       | T4A at 250V                       | T2A at 250V                       | T2A at 250V                       | T2A at 250V                       | 3 x T2A at 250V                   | —                        |
| External fusing         | Not required 2A 250 Vac slow blow | Not required 2A 250 Vac slow blow | Not required 2A 250 Vac slow blow | Not required 2A 250 Vac slow blow | Not required 2A 250 Vac slow blow | Not required 2A 250 Vac slow blow | Not required 2A 250 Vac slow blow | 3 x 1A 600 Vac slow blow |
| <b>Output</b>           |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                          |
| Voltage nominal         | 24 Vdc                            | 24 Vdc                            | 24 Vdc                            | 24 Vdc                            | 24 Vdc                            | 24V Vdc                           | 24 Vdc                            | 24 Vdc                   |
| Voltage regulation      | ±10%                              | ±10%                              | ±10%                              | ±10%                              | ±3.5%                             | ±3.5%                             | ±3.5%                             | ±3.5%                    |
| Current nominal         | <b>0.4A</b>                       | <b>0.4A</b>                       | <b>1.0A</b>                       | <b>1.0A</b>                       | <b>2.3A</b>                       | <b>2.3A</b>                       | <b>2.3A</b>                       | <b>2.3A</b>              |
| Voltage adj. range      | None                              | None                              | None                              | None                              | None                              | None                              | None                              | None                     |
| Current surge           | <b>1A</b>                         | <b>1A</b>                         | <b>6.8A</b>                       | <b>6.8A</b>                       | <b>10A</b>                        | <b>10A</b>                        | <b>10A</b>                        | <b>10A</b>               |
| Current surge time      | 35 ms                             | 35 ms                             | 85 ms                             | 85 ms                             | 180 ms                            | 180 ms                            | 180 ms                            | 180 ms                   |
| Surge cycle time        | —                                 | —                                 | —                                 | —                                 | 10s                               | 10s                               | 10s                               | 10s                      |
| Hold up time            | 100 ms                            | 100 ms                            | 100 ms                            | 100 ms                            | 70 ms                             | 70 ms                             | 24 ms                             | 30 ms                    |
| Max. load capacitance   | 10,000 µF                         | 10,000 µF                         | 10,000 µF                         | 10,000 µF                         | 10,000 µF                         | 10,000 µF                         | 10,000 µF                         | 10,000 µF                |
| Switching frequency     | 60 kHz                            | 60 kHz                            | 100 kHz                           | 100 kHz                           | 100 kHz                           | 100 kHz                           | 100 kHz                           | 61 kHz                   |
| Efficiency at max. load | 80%                               | 75%                               | 80%                               | 80%                               | 80%                               | 80%                               | 80%                               | 85%                      |
| Output ripple           | ±1%                               | ±1%                               | ±1%                               | ±1%                               | ±1%                               | ±1%                               | ±1%                               | ±1%                      |



**Table 8. Coil Power Consumption—AC Voltages 60 Hz**

| HP 460V  | Eaton XT | Inrush VA | Sealed VA | Allen-Bradley® | Inrush VA | Sealed VA | Telemecanique® | Inrush VA | Sealed VA |
|----------|----------|-----------|-----------|----------------|-----------|-----------|----------------|-----------|-----------|
| 3        | XTCE007B | 25        | 3.3       | 100-C09        | 70        | 8         | LC1D09         | 70        | 7         |
| 5        | XTCE009B | 25        | 3.3       | 100-C09        | 70        | 8         | LC1D09         | 70        | 7         |
| 7.5      | XTCE012B | 25        | 3.3       | 100-C12        | 70        | 8         | LC1D12         | 70        | 7         |
| 10       | XTCE015B | 25        | 3.3       | 100-C16        | 70        | 8         | LC1D18         | 70        | 7         |
| 15       | XTCE025C | 58        | 6.5       | 100-C23        | 70        | 9         | LC1D25         | 70        | 7         |
| 20       | XTCE032C | 58        | 6.5       | 100-C30        | 80        | 9         | LC1D32         | 70        | 7         |
| 25       | XTCE040D | 154       | 14        | 100-C37        | 80        | 9         | LC1D40         | 245       | 26        |
| 30       | XTCE040D | 154       | 14        | 100-C43        | 130       | 10        | LC1D40         | 245       | 26        |
| 40       | XTCE050D | 154       | 14        | 100-C60        | 200       | 16        | LC1D50         | 245       | 26        |
| 50       | XTCE065D | 154       | 14        | 100-C72        | 200       | 16        | LC1D65         | 245       | 26        |
| 60       | XTCE080F | 372       | 37.1      | 100-C85        | 200       | 16        | LC1D80         | 245       | 26        |
| 75       | XTCE095F | 328       | 22.6      | 100-D110       | 650       | 50        | LC1D115        | 350       | 6         |
| 100      | XTCE115G | 170       | 3.1       | 100-D140       | 650       | 50        | LC1D150        | 350       | 6         |
| 125      | XTCE150G | 170       | 3.1       | 100-D180       | 650       | 50        | LC1F185        | 970       | 66        |
| AC-3 (A) | Eaton XT | Inrush VA | Sealed VA | Allen-Bradley  | Inrush VA | Sealed VA | Telemecanique  | Inrush VA | Sealed VA |
| 7        | XTCE007B | 25        | 3.3       | 100-C09        | 70        | 8         | LC1D09         | 70        | 7         |
| 9        | XTCE009B | 25        | 3.3       | 100-C09        | 70        | 8         | LC1D09         | 70        | 7         |
| 12       | XTCE012B | 25        | 3.3       | 100-C12        | 70        | 8         | LC1D12         | 70        | 7         |
| 15       | XTCE015B | 25        | 3.3       | 100-C16        | 70        | 8         | LC1D18         | 70        | 7         |
| 18       | XTCE018C | 58        | 6.5       | 100-C23        | 70        | 9         | LC1D18         | 70        | 7         |
| 25       | XTCE025C | 58        | 6.5       | 100-C23        | 70        | 9         | LC1D25         | 70        | 7         |
| 32       | XTCE032C | 58        | 6.5       | 100-C30        | 80        | 9         | LC1D32         | 70        | 7         |
| 40       | XTCE040D | 154       | 14        | 100-C37        | 80        | 9         | LC1D40         | 245       | 26        |
| 50       | XTCE050D | 154       | 14        | 100-C43        | 130       | 10        | LC1D50         | 245       | 26        |
| 65       | XTCE065D | 154       | 14        | 100-C60        | 200       | 16        | LC1D65         | 245       | 26        |
| 72       | XTCE072D | 154       | 14        | 100-C72        | 200       | 16        | LC1D80         | 245       | 26        |
| 80       | XTCE080F | 372       | 37.1      | 100-C85        | 200       | 16        | LC1D80         | 245       | 26        |
| 95       | XTCE095F | 328       | 22.6      | 100-D95        | 650       | 50        | LC1D95         | 245       | 26        |
| 115      | XTCE115G | 170       | 3.1       | 100-D110       | 650       | 50        | LC1D115        | 350       | 6         |
| 150      | XTCE150G | 170       | 3.1       | 100-D140       | 650       | 50        | LC1D150        | 350       | 6         |
| 170      | XTCE170G | 170       | 3.1       | 100-D180       | 650       | 50        | LC1F185        | 970       | 66        |

**Table 8. Coil Power Consumption—AC Voltages 60 Hz (continued)**

| HP 460V | Eaton XT | Inrush VA | Sealed VA | Siemens® | Conventional |           | Electronic |           |
|---------|----------|-----------|-----------|----------|--------------|-----------|------------|-----------|
|         |          |           |           |          | Inrush VA    | Sealed VA | Inrush VA  | Sealed VA |
| 3       | XTCE007B | 25        | 3.3       | 3RT10 15 | 31.7         | 5.1       | —          | —         |
| 5       | XTCE009B | 25        | 3.3       | 3RT10 16 | 31.7         | 5.1       | —          | —         |
| 7.5     | XTCE012B | 25        | 3.3       | 3RT10 17 | 31.7         | 5.1       | —          | —         |
| 10      | XTCE015B | 25        | 3.3       | 3RT10 25 | 69           | 7.5       | —          | —         |
| 15      | XTCE025C | 58        | 6.5       | 3RT10 26 | 69           | 7.5       | —          | —         |
| 20      | XTCE032C | 58        | 6.5       | 3RT10 34 | 120          | 10.1      | —          | —         |
| 25      | XTCE040D | 154       | 14        | 3RT10 34 | 120          | 10.1      | —          | —         |
| 30      | XTCE040D | 154       | 14        | 3RT10 35 | 166          | 12.6      | —          | —         |
| 40      | XTCE050D | 154       | 14        | 3RT10 36 | 166          | 12.6      | —          | —         |
| 50      | XTCE065D | 154       | 14        | 3RT10 44 | 232          | 20        | —          | —         |
| 60      | XTCE080F | 372       | 37.1      | 3RT10 45 | 300          | 21        | —          | —         |
| 75      | XTCE095F | 328       | 22.6      | 3RT10 46 | 300          | 21        | —          | —         |
| 100     | XTCE115G | 170       | 3.1       | 3RT10 54 | 300          | 5.8       | 280        | 4.4       |
| 125     | XTCE150G | 170       | 3.1       | 3RT10 55 | 300          | 5.8       | 280        | 4.4       |

| AC-3 (A) | Eaton XT | Inrush VA | Sealed VA | Siemens  | Conventional |           | Electronic |           |
|----------|----------|-----------|-----------|----------|--------------|-----------|------------|-----------|
|          |          |           |           |          | Inrush VA    | Sealed VA | Inrush VA  | Sealed VA |
| 7        | XTCE007B | 25        | 3.3       | 3RT10 15 | 31.7         | 5.1       | —          | —         |
| 9        | XTCE009B | 25        | 3.3       | 3RT10 16 | 31.7         | 5.1       | —          | —         |
| 12       | XTCE012B | 25        | 3.3       | 3RT10 17 | 31.7         | 5.1       | —          | —         |
| 15       | XTCE015B | 25        | 3.3       | 3RT10 25 | 69           | 7.5       | —          | —         |
| 18       | XTCE018C | 58        | 6.5       | 3RT10 25 | 69           | 7.5       | —          | —         |
| 25       | XTCE025C | 58        | 6.5       | 3RT10 26 | 69           | 7.5       | —          | —         |
| 32       | XTCE032C | 58        | 6.5       | 3RT10 34 | 120          | 10.1      | —          | —         |
| 40       | XTCE040D | 154       | 14        | 3RT10 35 | 166          | 12.6      | —          | —         |
| 50       | XTCE050D | 154       | 14        | 3RT10 36 | 166          | 12.6      | —          | —         |
| 65       | XTCE065D | 154       | 14        | 3RT10 44 | 232          | 20        | —          | —         |
| 72       | XTCE072D | 154       | 14        | 3RT10 45 | 300          | 21        | —          | —         |
| 80       | XTCE080F | 372       | 37.1      | 3RT10 45 | 300          | 21        | —          | —         |
| 95       | XTCE095F | 328       | 22.6      | 3RT10 46 | 300          | 21        | —          | —         |
| 115      | XTCE115G | 170       | 3.1       | 3RT10 54 | 300          | 5.8       | 280        | 4.4       |
| 150      | XTCE150G | 170       | 3.1       | 3RT10 55 | 300          | 5.8       | 280        | 4.4       |
| 170      | XTCE170G | 170       | 3.1       | 3RT10 56 | 300          | 5.8       | 280        | 4.4       |



**Table 8. Coil Power Consumption—AC Voltages 60 Hz (continued)**

| <b>HP 460V</b>  | <b>Eaton XT</b> | <b>Inrush VA</b> | <b>Sealed VA</b> | <b>ABB</b> | <b>Inrush VA</b> | <b>Sealed VA</b> | <b>GE®</b> | <b>Inrush VA</b> | <b>Sealed VA</b> |
|-----------------|-----------------|------------------|------------------|------------|------------------|------------------|------------|------------------|------------------|
| 3               | XTCE007B        | 25               | 3.3              | A9-30      | 74               | 8                | CL00A3     | 45               | 6                |
| 5               | XTCE009B        | 25               | 3.3              | A9-30      | 74               | 8                | CL00A3     | 45               | 6                |
| 7.5             | XTCE012B        | 25               | 3.3              | A12-30     | 74               | 8                | CL01A3     | 45               | 6                |
| 10              | XTCE015B        | 25               | 3.3              | A16-30     | 74               | 8                | CL02A3     | 45               | 6                |
| 15              | XTCE025C        | 58               | 6.5              | A26-30     | 125              | 12               | CL25A3     | 45               | 6                |
| 20              | XTCE032C        | 58               | 6.5              | A26-30     | 125              | 12               | CL04A3     | 88               | 9                |
| 25              | XTCE040D        | 154              | 14               | A30-30     | 125              | 12               | CL45A3     | 88               | 9                |
| 30              | XTCE040D        | 154              | 14               | A40-30     | 125              | 12               | CL06A3     | 191              | 17               |
| 40              | XTCE050D        | 154              | 14               | A50-30     | 190              | 18               | CL07A3     | 191              | 17               |
| 50              | XTCE065D        | 154              | 14               | A63-30     | 190              | 18               | CL08A3     | 191              | 17               |
| 60              | XTCE080F        | 372              | 37.1             | A75-30     | 190              | 18               | CL09A3     | 191              | 17               |
| 75              | XTCE095F        | 328              | 22.6             | A110-30    | 410              | 27               | CL10A3     | 191              | 17               |
| 100             | XTCE115G        | 170              | 3.1              | A145-30    | 700              | 44               | CK75CE3    | 350              | 20               |
| 125             | XTCE150G        | 170              | 3.1              | A185-30    | 700              | 44               | CK08CE3    | 350              | 20               |
| <b>AC-3 (A)</b> | <b>Eaton XT</b> | <b>Inrush VA</b> | <b>Sealed VA</b> | <b>ABB</b> | <b>Inrush VA</b> | <b>Sealed VA</b> | <b>GE</b>  | <b>Inrush VA</b> | <b>Sealed VA</b> |
| 7               | XTCE007B        | 25               | 3.3              | A9-30      | 74               | 8                | CL00A3     | 45               | 6                |
| 9               | XTCE009B        | 25               | 3.3              | A9-30      | 74               | 8                | CL00A3     | 45               | 6                |
| 12              | XTCE012B        | 25               | 3.3              | A12-30     | 74               | 8                | CL01A3     | 45               | 6                |
| 15              | XTCE015B        | 25               | 3.3              | A16-30     | 74               | 8                | CL02A3     | 45               | 6                |
| 18              | XTCE018C        | 58               | 6.5              | A26-30     | 125              | 12               | CL02A3     | 45               | 6                |
| 25              | XTCE025C        | 58               | 6.5              | A26-30     | 125              | 12               | CL25A3     | 45               | 6                |
| 32              | XTCE032C        | 58               | 6.5              | A30-30     | 125              | 12               | CL04A3     | 88               | 9                |
| 40              | XTCE040D        | 154              | 14               | A40-30     | 125              | 12               | CL06A3     | 191              | 17               |
| 50              | XTCE050D        | 154              | 14               | A50-30     | 190              | 18               | CL06A3     | 191              | 17               |
| 65              | XTCE065D        | 154              | 14               | A63-30     | 190              | 18               | CL07A3     | 191              | 17               |
| 72              | XTCE072D        | 154              | 14               | A75-30     | 190              | 18               | CL08A3     | 191              | 17               |
| 80              | XTCE080F        | 372              | 37.1             | A75-30     | 190              | 18               | CL09A3     | 191              | 17               |
| 95              | XTCE095F        | 328              | 22.6             | A95-30     | 410              | 27               | CL10A3     | 191              | 17               |
| 115             | XTCE115G        | 170              | 3.1              | A110-30    | 410              | 27               | CK75CE3    | 350              | 20               |
| 150             | XTCE150G        | 170              | 3.1              | A145-30    | 700              | 44               | CK08CE3    | 350              | 20               |
| 170             | XTCE170G        | 170              | 3.1              | A185-30    | 700              | 44               | CK09BE3    | 425              | 20               |

**Table 9. Coil Power Consumption—24 Vdc**

| HP 460V | Eaton XT | Inrush W | Sealed W | Allen-Bradley | Conventional |          | Electronic |          |
|---------|----------|----------|----------|---------------|--------------|----------|------------|----------|
|         |          |          |          |               | Inrush W     | Sealed W | Inrush W   | Sealed W |
| 3       | XTCE007B | 3        | 3        | 100-C09       | 6.5          | 6.5      | 22         | 1.5      |
| 5       | XTCE009B | 3        | 3        | 100-C09       | 6.5          | 6.5      | 22         | 1.5      |
| 7.5     | XTCE012B | 4.5      | 4.5      | 100-C12       | 6.5          | 6.5      | 22         | 1.5      |
| 10      | XTCE015B | 4.5      | 4.5      | 100-C16       | 6.5          | 6.5      | 22         | 1.5      |
| 15      | XTCE025C | 12       | 0.5      | 100-C23       | 9.2          | 9.2      | 22         | 1.5      |
| 20      | XTCE032C | 12       | 0.5      | 100-C30       | 9.2          | 9.2      | 22         | 1.5      |
| 25      | XTCE040D | 24       | 0.5      | 100-C37       | 9.2          | 9.2      | 22         | 1.5      |
| 30      | XTCE040D | 24       | 0.5      | 100-C43       | 10.1         | 10.1     | 28         | 2.5      |
| 40      | XTCE050D | 24       | 0.5      | 100-C60       | 200          | 4.5      | —          | —        |
| 50      | XTCE065D | 24       | 0.5      | 100-C72       | 200          | 4.5      | —          | —        |
| 60      | XTCE080F | 90       | 1.3      | 100-C85       | 200          | 4.5      | —          | —        |
| 75      | XTCE095F | 90       | 1.3      | 100-D110      | 540          | 8        | —          | —        |
| 100     | XTCE115G | 149      | 2.1      | 100-D140      | 540          | 8        | —          | —        |
| 125     | XTCE150G | 149      | 2.1      | 100-D180      | 540          | 8        | —          | —        |

| AC-3 (A) | Eaton XT | Inrush W | Sealed W | Allen-Bradley | Conventional |          | Electronic |          |
|----------|----------|----------|----------|---------------|--------------|----------|------------|----------|
|          |          |          |          |               | Inrush W     | Sealed W | Inrush W   | Sealed W |
| 7        | XTCE007B | 3        | 3        | 100-C09       | 6.5          | 6.5      | 22         | 1.5      |
| 9        | XTCE009B | 3        | 3        | 100-C09       | 6.5          | 6.5      | 22         | 1.5      |
| 12       | XTCE012B | 4.5      | 4.5      | 100-C12       | 6.5          | 6.5      | 22         | 1.5      |
| 15       | XTCE015B | 4.5      | 4.5      | 100-C16       | 6.5          | 6.5      | 22         | 1.5      |
| 18       | XTCE018C | 12       | 0.5      | 100-C23       | 9.2          | 9.2      | 22         | 1.5      |
| 25       | XTCE025C | 12       | 0.5      | 100-C23       | 9.2          | 9.2      | 22         | 1.5      |
| 32       | XTCE032C | 12       | 0.5      | 100-C30       | 9.2          | 9.2      | 22         | 1.5      |
| 40       | XTCE040D | 24       | 0.5      | 100-C37       | 9.2          | 9.2      | 22         | 1.5      |
| 50       | XTCE050D | 24       | 0.5      | 100-C43       | 10.1         | 10.1     | 28         | 2.5      |
| 65       | XTCE065D | 24       | 0.5      | 100-C60       | 200          | 4.5      | —          | —        |
| 72       | XTCE072D | 24       | 0.5      | 100-C72       | 200          | 4.5      | —          | —        |
| 80       | XTCE080F | 90       | 1.3      | 100-C85       | 200          | 4.5      | —          | —        |
| 95       | XTCE095F | 90       | 1.3      | 100-D95       | 540          | 8        | —          | —        |
| 115      | XTCE115G | 149      | 2.1      | 100-D110      | 540          | 8        | —          | —        |
| 150      | XTCE150G | 149      | 2.1      | 100-D140      | 540          | 8        | —          | —        |
| 170      | XTCE170G | 149      | 2.1      | 100-D180      | 540          | 8        | —          | —        |

Table 9. Coil Power Consumption—24 Vdc (continued)

| HP 460V | Eaton XT | Inrush W | Sealed W | Telemecanique | Conventional (Ending in BD) |          |
|---------|----------|----------|----------|---------------|-----------------------------|----------|
|         |          |          |          |               | Inrush W                    | Sealed W |
| 3       | XTCE007B | 3        | 3        | LC1D09        | 5.4                         | 5.4      |
| 5       | XTCE009B | 3        | 3        | LC1D09        | 5.4                         | 5.4      |
| 7.5     | XTCE012B | 4.5      | 4.5      | LC1D12        | 5.4                         | 5.4      |
| 10      | XTCE015B | 4.5      | 4.5      | LC1D18        | 5.4                         | 5.4      |
| 15      | XTCE025C | 12       | 0.5      | LC1D25        | 5.4                         | 5.4      |
| 20      | XTCE032C | 12       | 0.5      | LC1D32        | 5.4                         | 5.4      |
| 25      | XTCE040D | 24       | 0.5      | LC1D40        | 22                          | 22       |
| 30      | XTCE040D | 24       | 0.5      | LC1D40        | 22                          | 22       |
| 40      | XTCE050D | 24       | 0.5      | LC1D50        | 22                          | 22       |
| 50      | XTCE065D | 24       | 0.5      | LC1D65        | 22                          | 22       |
| 60      | XTCE080F | 90       | 1.3      | LC1D80        | 22                          | 22       |
| 75      | XTCE095F | 90       | 1.3      | LC1D115       | 365                         | 5.1      |
| 100     | XTCE115G | 149      | 2.1      | LC1D150       | 365                         | 5.1      |
| 125     | XTCE150G | 149      | 2.1      | LC1F185       | 800                         | 5        |

| AC-3 (A) | Eaton XT | Inrush W | Sealed W | Telemecanique | Conventional (Ending in BD) |          |
|----------|----------|----------|----------|---------------|-----------------------------|----------|
|          |          |          |          |               | Inrush W                    | Sealed W |
| 7        | XTCE007B | 3        | 3        | LC1D09        | 5.4                         | 5.4      |
| 9        | XTCE009B | 3        | 3        | LC1D09        | 5.4                         | 5.4      |
| 12       | XTCE012B | 4.5      | 4.5      | LC1D12        | 5.4                         | 5.4      |
| 15       | XTCE015B | 4.5      | 4.5      | LC1D18        | 5.4                         | 5.4      |
| 18       | XTCE018C | 12       | 0.5      | LC1D18        | 5.4                         | 5.4      |
| 25       | XTCE025C | 12       | 0.5      | LC1D25        | 5.4                         | 5.4      |
| 32       | XTCE032C | 12       | 0.5      | LC1D32        | 5.4                         | 5.4      |
| 40       | XTCE040D | 24       | 0.5      | LC1D40        | 22                          | 22       |
| 50       | XTCE050D | 24       | 0.5      | LC1D50        | 22                          | 22       |
| 65       | XTCE065D | 24       | 0.5      | LC1D65        | 22                          | 22       |
| 72       | XTCE072D | 24       | 0.5      | LC1D80        | 22                          | 22       |
| 80       | XTCE080F | 90       | 1.3      | LC1D80        | 22                          | 22       |
| 95       | XTCE095F | 90       | 1.3      | LC1D95        | 22                          | 22       |
| 115      | XTCE115G | 149      | 2.1      | LC1D115       | 365                         | 5.1      |
| 150      | XTCE150G | 149      | 2.1      | LC1D150       | 365                         | 5.1      |
| 170      | XTCE170G | 149      | 2.1      | LC1F185       | 800                         | 5        |

**Table 9. Coil Power Consumption—24 Vdc (continued)**

| HP 460V | Eaton XT | Inrush W | Sealed W | Siemens  | Electronic |          | Conventional |          |
|---------|----------|----------|----------|----------|------------|----------|--------------|----------|
|         |          |          |          |          | Inrush W   | Sealed W | Inrush W     | Sealed W |
| 3       | XTCE007B | 3        | 3        | 3RT10 15 | 3.3        | 3.3      | —            | —        |
| 5       | XTCE009B | 3        | 3        | 3RT10 16 | 3.3        | 3.3      | —            | —        |
| 7.5     | XTCE012B | 4.5      | 4.5      | 3RT10 17 | 3.3        | 3.3      | —            | —        |
| 10      | XTCE015B | 4.5      | 4.5      | 3RT10 25 | 5.4        | 5.4      | —            | —        |
| 15      | XTCE025C | 12       | 0.5      | 3RT10 26 | 5.4        | 5.4      | —            | —        |
| 20      | XTCE032C | 12       | 0.5      | 3RT10 34 | 13.3       | 13.3     | —            | —        |
| 25      | XTCE040D | 24       | 0.5      | 3RT10 34 | 13.3       | 13.3     | —            | —        |
| 30      | XTCE040D | 24       | 0.5      | 3RT10 35 | 13.3       | 13.3     | —            | —        |
| 40      | XTCE050D | 24       | 0.5      | 3RT10 36 | 13.3       | 13.3     | —            | —        |
| 50      | XTCE065D | 24       | 0.5      | 3RT10 44 | 15         | 15       | —            | —        |
| 60      | XTCE080F | 90       | 1.3      | 3RT10 45 | 15         | 15       | —            | —        |
| 75      | XTCE095F | 90       | 1.3      | 3RT10 46 | 15         | 15       | —            | —        |
| 100     | XTCE115G | 149      | 2.1      | 3RT10 54 | 320        | 2.8      | 360          | 5.2      |
| 125     | XTCE150G | 149      | 2.1      | 3RT10 55 | 320        | 2.8      | 360          | 5.2      |

| AC-3 (A) | Eaton XT | Inrush W | Sealed W | Siemens  | Electronic |          | Conventional |          |
|----------|----------|----------|----------|----------|------------|----------|--------------|----------|
|          |          |          |          |          | Inrush W   | Sealed W | Inrush W     | Sealed W |
| 7        | XTCE007B | 3        | 3        | 3RT10 15 | 3.3        | 3.3      | —            | —        |
| 9        | XTCE009B | 3        | 3        | 3RT10 16 | 3.3        | 3.3      | —            | —        |
| 12       | XTCE012B | 4.5      | 4.5      | 3RT10 17 | 3.3        | 3.3      | —            | —        |
| 15       | XTCE015B | 4.5      | 4.5      | 3RT10 25 | 5.4        | 5.4      | —            | —        |
| 18       | XTCE018C | 12       | 0.5      | 3RT10 25 | 5.4        | 5.4      | —            | —        |
| 25       | XTCE025C | 12       | 0.5      | 3RT10 26 | 5.4        | 5.4      | —            | —        |
| 32       | XTCE032C | 12       | 0.5      | 3RT10 34 | 13.3       | 13.3     | —            | —        |
| 40       | XTCE040D | 24       | 0.5      | 3RT10 35 | 13.3       | 13.3     | —            | —        |
| 50       | XTCE050D | 24       | 0.5      | 3RT10 36 | 13.3       | 13.3     | —            | —        |
| 65       | XTCE065D | 24       | 0.5      | 3RT10 44 | 15         | 15       | —            | —        |
| 72       | XTCE072D | 24       | 0.5      | 3RT10 45 | 15         | 15       | —            | —        |
| 80       | XTCE080F | 90       | 1.3      | 3RT10 45 | 15         | 15       | —            | —        |
| 95       | XTCE095F | 90       | 1.3      | 3RT10 46 | 15         | 15       | —            | —        |
| 115      | XTCE115G | 149      | 2.1      | 3RT10 54 | 320        | 2.8      | 360          | 5.2      |
| 150      | XTCE150G | 149      | 2.1      | 3RT10 55 | 320        | 2.8      | 360          | 5.2      |
| 170      | XTCE170G | 149      | 2.1      | 3RT10 56 | 320        | 2.8      | 360          | 5.2      |

Table 9. Coil Power Consumption—24 Vdc (continued)

| HP 460V | Eaton XT | Inrush W | Sealed W | ABB      | Conventional |          |
|---------|----------|----------|----------|----------|--------------|----------|
|         |          |          |          |          | Inrush W     | Sealed W |
| 3       | XTCE007B | 3        | 3        | AE9-30   | 90           | 2        |
| 5       | XTCE009B | 3        | 3        | AE9-30   | 90           | 2        |
| 7.5     | XTCE012B | 4.5      | 4.5      | AE12-30  | 90           | 2        |
| 10      | XTCE015B | 4.5      | 4.5      | AE16-30  | 90           | 2        |
| 15      | XTCE025C | 12       | 0.5      | AE26-30  | 110          | 2.5      |
| 20      | XTCE032C | 12       | 0.5      | AE26-30  | 110          | 2.5      |
| 25      | XTCE040D | 24       | 0.5      | AE30-30  | 110          | 2.5      |
| 30      | XTCE040D | 24       | 0.5      | AE40-30  | 110          | 2.5      |
| 40      | XTCE050D | 24       | 0.5      | AE50-30  | 200          | 4        |
| 50      | XTCE065D | 24       | 0.5      | AE63-30  | 200          | 4        |
| 60      | XTCE080F | 90       | 1.3      | AE75-30  | 200          | 4        |
| 75      | XTCE095F | 90       | 1.3      | AE110-30 | 400          | 2.4      |
| 100     | XTCE115G | 149      | 2.1      | AF145-30 | 500          | 2        |
| 125     | XTCE150G | 149      | 2.1      | AF185-30 | 500          | 2        |

| AC-3 (A) | Eaton XT | Inrush W | Sealed W | ABB      | Conventional |          |
|----------|----------|----------|----------|----------|--------------|----------|
|          |          |          |          |          | Inrush W     | Sealed W |
| 7        | XTCE007B | 3        | 3        | AE9-30   | 90           | 2        |
| 9        | XTCE009B | 3        | 3        | AE9-30   | 90           | 2        |
| 12       | XTCE012B | 4.5      | 4.5      | AE12-30  | 90           | 2        |
| 15       | XTCE015B | 4.5      | 4.5      | AE16-30  | 90           | 2        |
| 18       | XTCE018C | 12       | 0.5      | AE26-30  | 110          | 2.5      |
| 25       | XTCE025C | 12       | 0.5      | AE26-30  | 110          | 2.5      |
| 32       | XTCE032C | 12       | 0.5      | AE30-30  | 110          | 2.5      |
| 40       | XTCE040D | 24       | 0.5      | AE40-30  | 110          | 2.5      |
| 50       | XTCE050D | 24       | 0.5      | AE50-30  | 200          | 4        |
| 65       | XTCE065D | 24       | 0.5      | AE63-30  | 200          | 4        |
| 72       | XTCE072D | 24       | 0.5      | AE75-30  | 200          | 4        |
| 80       | XTCE080F | 90       | 1.3      | AE75-30  | 200          | 4        |
| 95       | XTCE095F | 90       | 1.3      | AE95-30  | 400          | 2.4      |
| 115      | XTCE115G | 149      | 2.1      | AE110-30 | 400          | 2.4      |
| 150      | XTCE150G | 149      | 2.1      | AF145-30 | 500          | 2        |
| 170      | XTCE170G | 149      | 2.1      | AF185-30 | 500          | 2        |

**Table 9. Coil Power Consumption—24 Vdc (continued)**

| <b>HP 460V</b>  | <b>Eaton XT</b> | <b>Inrush W</b> | <b>Sealed W</b> | <b>GE</b> | <b>Inrush W</b> | <b>Sealed W</b> |
|-----------------|-----------------|-----------------|-----------------|-----------|-----------------|-----------------|
| 3               | XTCE007B        | 3               | 3               | CL00D3    | 5.5             | 5.5             |
| 5               | XTCE009B        | 3               | 3               | CL00D3    | 5.5             | 5.5             |
| 7.5             | XTCE012B        | 4.5             | 4.5             | CL01D3    | 5.5             | 5.5             |
| 10              | XTCE015B        | 4.5             | 4.5             | CL02D3    | 5.5             | 5.5             |
| 15              | XTCE025C        | 12              | 0.5             | CL25D3    | 5.5             | 5.5             |
| 20              | XTCE032C        | 12              | 0.5             | CL04D3    | 7.5             | 7.5             |
| 25              | XTCE040D        | 24              | 0.5             | CL45D3    | 7.5             | 7.5             |
| 30              | XTCE040D        | 24              | 0.5             | CL06E3    | 125             | 2.5             |
| 40              | XTCE050D        | 24              | 0.5             | CL07E3    | 125             | 2.5             |
| 50              | XTCE065D        | 24              | 0.5             | CL08E3    | 125             | 2.5             |
| 60              | XTCE080F        | 90              | 1.3             | CL09E3    | 125             | 2.5             |
| 75              | XTCE095F        | 90              | 1.3             | CL10E3    | 125             | 2.5             |
| 100             | XTCE115G        | 149             | 2.1             | CK75CE3   | 202             | 12              |
| 125             | XTCE150G        | 149             | 2.1             | CK08CE3   | 202             | 12              |
| <b>AC-3 (A)</b> | <b>Eaton XT</b> | <b>Inrush W</b> | <b>Sealed W</b> | <b>GE</b> | <b>Inrush W</b> | <b>Sealed W</b> |
| 7               | XTCE007B        | 3               | 3               | CL00D3    | 5.5             | 5.5             |
| 9               | XTCE009B        | 3               | 3               | CL00D3    | 5.5             | 5.5             |
| 12              | XTCE012B        | 4.5             | 4.5             | CL01D3    | 5.5             | 5.5             |
| 15              | XTCE015B        | 4.5             | 4.5             | CL02D3    | 5.5             | 5.5             |
| 18              | XTCE018C        | 12              | 0.5             | CL02D3    | 5.5             | 5.5             |
| 25              | XTCE025C        | 12              | 0.5             | CL25D3    | 5.5             | 5.5             |
| 32              | XTCE032C        | 12              | 0.5             | CL04D3    | 7.5             | 7.5             |
| 40              | XTCE040D        | 24              | 0.5             | CL06E3    | 125             | 2.5             |
| 50              | XTCE050D        | 24              | 0.5             | CL06E3    | 125             | 2.5             |
| 65              | XTCE065D        | 24              | 0.5             | CL07E3    | 125             | 2.5             |
| 72              | XTCE072D        | 24              | 0.5             | CL08E3    | 125             | 2.5             |
| 80              | XTCE080F        | 90              | 1.3             | CL09E3    | 125             | 2.5             |
| 95              | XTCE095F        | 90              | 1.3             | CL10E3    | 125             | 2.5             |
| 115             | XTCE115G        | 149             | 2.1             | CK75CE3   | 202             | 12              |
| 150             | XTCE150G        | 149             | 2.1             | CK08CE3   | 202             | 12              |
| 170             | XTCE170G        | 149             | 2.1             | CK09BE3   | 246             | 12              |

### Control power transformer sizing sheets

Use the following tables to calculate CPT size with **XT** versus the competition.

**Table 10. Control Power Transformer Sizing Sheet A**

| Control Panel with present motor control                                   |             |     |                  |                  |                    |                    |
|----------------------------------------------------------------------------|-------------|-----|------------------|------------------|--------------------|--------------------|
| Part Number                                                                | Description | Qty | Inrush VA<br>ea. | Sealed VA<br>ea. | Total<br>Inrush VA | Total Sealed<br>VA |
|                                                                            |             |     |                  |                  |                    | <b>TOTAL</b>       |
| CPT INRUSH VA = $\sqrt{(\text{Total Inrush})^2 + (\text{Total Sealed})^2}$ |             |     |                  |                  |                    |                    |
| CPT INRUSH VA = _____                                                      |             |     |                  |                  |                    |                    |
| CPT VA Size = _____                                                        |             |     |                  |                  |                    |                    |

**Table 11. Control Power Transformer Sizing Sheet B**

| Control Panel using Eaton XT                                               |             |     |                  |                  |                    |                    |
|----------------------------------------------------------------------------|-------------|-----|------------------|------------------|--------------------|--------------------|
| Part Number                                                                | Description | Qty | Inrush VA<br>ea. | Sealed VA<br>ea. | Total<br>Inrush VA | Total Sealed<br>VA |
|                                                                            |             |     |                  |                  |                    | <b>TOTAL</b>       |
| CPT INRUSH VA = $\sqrt{(\text{Total Inrush})^2 + (\text{Total Sealed})^2}$ |             |     |                  |                  |                    |                    |
| CPT INRUSH VA = _____                                                      |             |     |                  |                  |                    |                    |
| CPT VA Size = _____                                                        |             |     |                  |                  |                    |                    |

## Power supply sizing sheets

Use the following tables to calculate power supply size with **XT** versus the competition.

**Table 12. Power Supply Sizing Sheet A**

| Control Panel with present motor control |             |     |                 |                 |                   |                   |                           |                             |
|------------------------------------------|-------------|-----|-----------------|-----------------|-------------------|-------------------|---------------------------|-----------------------------|
| Part Number                              | Description | Qty | Inrush W<br>ea. | Sealed W<br>ea. | Total Inrush<br>W | Total Sealed<br>W | Total Inrush<br>(Surge) A | Total Sealed<br>(Nominal) A |
| <b>TOTAL</b>                             |             |     |                 |                 |                   |                   |                           |                             |
| Power Supply Size = _____                |             |     |                 |                 |                   |                   |                           |                             |

**Table 13. Power Supply Sizing Sheet B**

| Control Panel using Eaton XT |             |     |                 |                 |                   |                   |                           |                             |
|------------------------------|-------------|-----|-----------------|-----------------|-------------------|-------------------|---------------------------|-----------------------------|
| Part Number                  | Description | Qty | Inrush W<br>ea. | Sealed W<br>ea. | Total Inrush<br>W | Total Sealed<br>W | Total Inrush<br>(Surge) A | Total Sealed<br>(Nominal) A |
| <b>TOTAL</b>                 |             |     |                 |                 |                   |                   |                           |                             |
| Power Supply Size = _____    |             |     |                 |                 |                   |                   |                           |                             |

**Eaton Corporation**  
 Electrical Sector  
 1111 Superior Ave.  
 Cleveland, OH 44114  
 United States  
 877-ETN-CARE (877-386-2273)  
 Eaton.com

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