# PowerSafe™ CA


## PERFORMANCE SPECIFICATIONS

EnerSys™
Power/Full Solutions

ISO 9000™

Publication No. US-CA-PS-001 April 2006

PowerSafe™ CA

The PowerSafe™ CA battery has been carefully engineered to meet the varying power needs of the utility market. The lead-antimony alloy grids maximize performance in high cycling applications. The lead-antimony design alloy also enables the CA battery to tolerate higher temperatures than standard lead-calcium designs. This makes the CA battery ideal for challenging utility switchgear applications.

Its 0.28 inch positive grids are one of the thickest in the industry, making it an excellent long discharge battery. At the same time, its nearly square plate configuration enhances high rate performance. Coupling these two operating characteristics with multi-cell construction to minimize floor space makes the CA ideally suited for the complex duty cycle requirements of the switchgear application.

The PowerSafe CA now features the Slide-Lock™ post seal design. The slightly taller jar allows for more free electrolyte, a longer watering interval and now enables the PowerSafe CA to deliver 100% initial capacity. The PowerSafe CA's space efficient footprint remains the same, as the length and width have not changed. The PowerSafe CA was designed for easier maintenance since all the posts and connectors reside above the cell cover; maintenance routines, including individual cell monitoring and intercell resistance measurements are simplified. The individual cell post feature along with the Slide-Lock™ post seal and 100% initial capacity make the CA the battery of choice for utility switchgear applications.

## Features

- Slide-Lock™ post seal design.
- Added electrolyte reserve reduces watering requirements.
- Individual posts to monitor individual cell performance in a multi-cell container.
- Thick grids provide excellent long discharge rate performance and long life.
- Square plate configuration enhances high rate performance.
- 100% initial capacity.
- Applications: switchgear, utility, telecommunications.
- 20 year life expectancy in float service at 77°F ambient temperature.
- Capacity from 50 to 200 Ah.

## Specifications

- Plate thickness:
  Positive: 0.28 in/7.1 mm
  Negative: 0.14 in/3.6 mm

- Plate dimensions:

| | Height | Width |
|---|---|---|
| Pos: | 7.75 in/197 mm | 8.00 in/203 mm |
| Neg: | 7.75 in/197 mm | 8.00 in/203 mm |

- Sediment space: 1.0 in/25.4 mm
- Electrolyte over plates: 2.38 in/60.5 mm
- Container: Styrene Acrylonitrile Copolymer, optional PC
- Cover: Made from flame retardant PVC, (UL94-VO/L.O.I. 28%)
- Separators: Microporous rubber
- Retainers: "Vitrex" - glass fiber
- Post seal type: Slide-Lock™
- Plate Suspension Type:
  Positive: Bottom supported
  Negative: Bottom supported
- Vent Type: Flame arrestor, fused alumina
- Float voltage setting:
  Acceptable min/max: 2.15/2.22 VPC
  Recommended: 2.20 VPC
- Specific gravity: 1.215 (1.250 available upon request)
- Bolt connectors: Stainless steel, standard english measure, hex-head
- Intercell connectors: lead-plated copper

*NOTE: All inter-cell, inter-tier, inter-step, end-to-end inter-rack, and back-to-back inter-rack connectors for standard configurations are included with every battery. Across-aisle inter-rack connectors are not included.*



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## General Specifications

| TYPE* | NOM. Ah CAP | Nominal Dimensions | | | | | | Weights - Volumes | | | | | | | | Short Circuit Current |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Length** | | Width | | Height | | Unpacked | | Domestic Packed | | Electrolyte Only / 1.215 S.G. | | | | |
| | | in | mm | in | mm | in | mm | lbs | kg | lbs | kg | lbs | kg | gal | l | Amps |
| 2CA-3M | 50 | 7.0 | 178 | 9.0 | 229 | 14.8 | 375 | 42 | 19.1 | 48 | 21.8 | 11 | 5.0 | 1.1 | 4.2 | 494 |
| 3CA-3M | 50 | 7.0 | 178 | 9.0 | 229 | 14.8 | 375 | 57 | 25.9 | 63 | 28.6 | 16 | 7.3 | 1.6 | 6.1 | 494 |
| 2CA-5M | 100 | 7.0 | 178 | 9.0 | 229 | 14.8 | 375 | 51 | 23.1 | 56 | 25.4 | 10 | 4.5 | 1.0 | 3.7 | 972 |
| 3CA-5M | 100 | 7.0 | 178 | 9.0 | 229 | 14.8 | 375 | 74 | 33.6 | 79 | 35.8 | 15 | 6.8 | 1.5 | 5.7 | 972 |
| 2CA-7M | 150 | 12.2 | 310 | 9.0 | 229 | 14.8 | 375 | 76 | 34.5 | 85 | 38.6 | 22 | 10.0 | 2.2 | 8.3 | 1434 |
| 3CA-7M | 150 | 12.2 | 310 | 9.0 | 229 | 14.8 | 375 | 114 | 51.7 | 123 | 55.8 | 33 | 15.0 | 3.3 | 12.5 | 1434 |
| 2CA-9M | 200 | 12.2 | 310 | 9.0 | 229 | 14.8 | 375 | 88 | 39.9 | 95 | 43.1 | 22 | 10.0 | 2.1 | 7.9 | 1862 |
| 3CA-9M | 200 | 12.2 | 310 | 9.0 | 229 | 14.8 | 375 | 132 | 59.9 | 138 | 67.6 | 33 | 15.0 | 3.2 | 12.1 | 1862 |

* Prefix number indicates cells per unit. Suffix number indicates total plates per cell.
** 0.25" must be added between cells for spacing purposes when calculating total battery length.

### 1.215 Specific Gravity

### Discharge Rates in Amperes per Cell** to 1.75Vpc at 25˚C (77˚F)*

| Type | NOM. Ah CAP.† | Minutes | | | Hours | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 15 | 30 | 1 | 1.5 | 2 | 3 | 4 | 5 | 8 | 12 | 24 |
| 2CA-3M | 50 | 68 | 45 | 35.2 | 25.5 | 20.2 | 16.8 | 12.9 | 10.4 | 8.8 | 6.3 | 4.4 | 2.5 |
| 3CA-3M | 50 | 68 | 45 | 35.2 | 25.5 | 20.2 | 16.8 | 12.9 | 10.4 | 8.8 | 6.3 | 4.4 | 2.5 |
| 2CA-5M | 100 | 136 | 89 | 70.3 | 51.0 | 40.4 | 33.6 | 25.7 | 20.7 | 17.6 | 12.5 | 9.1 | 5.0 |
| 3CA-5M | 100 | 136 | 89 | 70.3 | 51.0 | 40.4 | 33.6 | 25.7 | 20.7 | 17.6 | 12.5 | 9.1 | 5.0 |
| 2CA-7M | 150 | 204 | 134 | 105.4 | 76.5 | 60.6 | 50.4 | 38.6 | 31.1 | 26.4 | 18.8 | 13.6 | 7.5 |
| 3CA-7M | 150 | 204 | 134 | 105.4 | 76.5 | 60.6 | 50.4 | 38.6 | 31.1 | 26.4 | 18.8 | 13.6 | 7.5 |
| 2CA-9M | 200 | 272 | 178 | 140.6 | 102.0 | 80.8 | 67.2 | 51.4 | 41.4 | 35.2 | 25.0 | 18.1 | 10.0 |
| 3CA-9M | 200 | 272 | 178 | 140.6 | 102.0 | 80.8 | 67.2 | 51.4 | 41.4 | 35.2 | 25.0 | 18.1 | 10.0 |

### 1.215 Specific Gravity

### Discharge Rates in Amperes per Cell** to 1.81Vpc at 25˚C (77˚F)*

| Type | NOM. Ah CAP.† | Minutes | | | Hours | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 15 | 30 | 1 | 1.5 | 2 | 3 | 4 | 5 | 8 | 12 | 24 |
| 2CA-3M | 50 | 51 | 38 | 30.0 | 22.3 | 18.0 | 15.3 | 11.8 | 9.8 | 8.4 | 5.9 | 4.3 | 2.4 |
| 3CA-3M | 50 | 51 | 38 | 30.0 | 22.3 | 18.0 | 15.3 | 11.8 | 9.8 | 8.4 | 5.9 | 4.3 | 2.4 |
| 2CA-5M | 100 | 102 | 75 | 59.9 | 45.5 | 36.0 | 30.5 | 23.6 | 19.5 | 16.7 | 11.8 | 8.5 | 4.7 |
| 3CA-5M | 100 | 102 | 75 | 59.9 | 45.5 | 36.0 | 30.5 | 23.6 | 19.5 | 16.7 | 11.8 | 8.5 | 4.7 |
| 2CA-7M | 150 | 153 | 113 | 81.8 | 66.8 | 54.0 | 45.8 | 35.4 | 29.3 | 25.1 | 17.7 | 12.8 | 7.1 |
| 3CA-7M | 150 | 153 | 113 | 81.8 | 66.8 | 54.0 | 45.8 | 35.4 | 29.3 | 25.1 | 17.7 | 12.8 | 7.1 |
| 2CA-9M | 200 | 204 | 150 | 119.8 | 89.0 | 72.0 | 61.0 | 47.2 | 39.0 | 33.4 | 23.6 | 17.1 | 9.4 |
| 3CA-9M | 200 | 204 | 150 | 119.8 | 89.0 | 72.0 | 61.0 | 47.2 | 39.0 | 33.4 | 23.6 | 17.1 | 9.4 |

## 1.215 Specific Gravity

## Discharge Rates in Amperes per Cell** to 1.84Vpc at 25˚C (77˚F)*

| Type | NOM. Ah CAP.[1] | Minutes | | | Hours | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 15 | 30 | 1 | 1.5 | 2 | 3 | 4 | 5 | 8 | 12 | 24 |
| **2CA-3M** | 50 | 45 | 33 | 27.1 | 20.3 | 16.5 | 14.1 | 11.0 | 9.1 | 7.9 | 5.6 | 4.1 | 2.2 |
| **3CA-3M** | 50 | 45 | 33 | 27.1 | 20.3 | 16.5 | 14.1 | 11.0 | 9.1 | 7.9 | 5.6 | 4.1 | 2.2 |
| **2CA-5M** | 100 | 89 | 67 | 54.1 | 40.6 | 33.1 | 28.1 | 22.0 | 18.3 | 15.7 | 11.2 | 8.1 | 4.5 |
| **3CA-5M** | 100 | 89 | 67 | 54.1 | 40.6 | 33.1 | 28.1 | 22.0 | 18.3 | 15.7 | 11.2 | 8.1 | 4.5 |
| **2CA-7M** | 150 | 134 | 100 | 81.2 | 61.0 | 49.6 | 42.2 | 33.0 | 27.4 | 23.6 | 16.8 | 12.2 | 6.7 |
| **3CA-7M** | 150 | 134 | 100 | 81.2 | 61.0 | 49.6 | 42.2 | 33.0 | 27.4 | 23.6 | 16.8 | 12.2 | 6.7 |
| **2CA-9M** | 200 | 178 | 134 | 108.2 | 81.3 | 66.2 | 56.3 | 43.9 | 36.5 | 31.4 | 22.4 | 16.2 | 9.0 |
| **3CA-9M** | 200 | 178 | 134 | 108.2 | 81.3 | 66.2 | 56.3 | 43.9 | 36.5 | 31.4 | 22.4 | 16.2 | 9.0 |

## 1.215 Specific Gravity

## Discharge Rates in Amperes per Cell** to 1.88Vpc at 25˚C (77˚F)*

| Type | NOM. Ah CAP.[1] | Minutes | | | Hours | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 15 | 30 | 1 | 1.5 | 2 | 3 | 4 | 5 | 8 | 12 | 24 |
| **2CA-3M** | 50 | 36 | 28 | 23.2 | 17.8 | 14.6 | 12.5 | 9.9 | 8.3 | 7.2 | 5.2 | 3.8 | 2.1 |
| **3CA-3M** | 50 | 36 | 28 | 23.2 | 17.8 | 14.6 | 12.5 | 9.9 | 8.3 | 7.2 | 5.2 | 3.8 | 2.1 |
| **2CA-5M** | 100 | 72 | 56 | 46.4 | 35.5 | 29.2 | 25.0 | 19.8 | 16.6 | 14.4 | 10.4 | 7.6 | 4.2 |
| **3CA-5M** | 100 | 72 | 56 | 46.4 | 35.5 | 29.2 | 25.0 | 19.8 | 16.6 | 14.4 | 10.4 | 7.6 | 4.2 |
| **2CA-7M** | 150 | 108 | 84 | 69.6 | 53.3 | 43.8 | 37.5 | 29.7 | 24.9 | 21.6 | 15.6 | 11.4 | 6.2 |
| **3CA-7M** | 150 | 108 | 84 | 69.6 | 53.3 | 43.8 | 37.5 | 29.7 | 24.9 | 21.6 | 15.6 | 11.4 | 6.2 |
| **2CA-9M** | 200 | 144 | 112 | 92.7 | 71.0 | 58.4 | 50.0 | 39.6 | 33.2 | 28.8 | 20.8 | 15.1 | 8.3 |
| **3CA-9M** | 200 | 144 | 112 | 92.7 | 71.0 | 58.4 | 50.0 | 39.6 | 33.2 | 28.8 | 20.8 | 15.1 | 8.3 |

*Amperes values listed represent 100% of the cell's capacity.
**1.215 S.G. electrolyte at 77ºF (25ºC) includes intercell connector drop.
[1]Nominal Amp hour capacity at the 8 hour rate.
All data subject to change without notice.

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