

E-Saver-33L

Ultra Efficient Application Optimized Dry Type Transformer

Optimized for Application Load (OPAL) yields substantially lower losses than typical DOE compliant units

| | | | | | | | | |
|---|---|--|--------------|-------------------|-----------------------------|------------------------|---|---------------|
| Electrical Ratings | Power [kVA] | 500 | | | | | | |
| | Continous Overload [kVA] | 550 <i>Max. Linear Load; 1 THD < 0.05 p.u. < 30°C Amb.</i> | | | | | | |
| | Primary [V] | 480 | | | | | | |
| | Secondaries [V] | 120/208 | | | | | | |
| | Frequency [Hz]/Phase/Shift | 60 / 3-Phase -30 deg. | | | | | | |
| | Primary Taps | 2 x 2 1/2 % FCAN; 4 x 2 1/2 % FCBN; (6 Taps) | | | | | | |
| | K-Rating (IEEE C57.110) [K] | K7 @ 100%; >K13 @ 80%; <i>Refer Powersmiths published tables for other ratings</i> | | | | | | |
| Topology & Materials | Electrical Topology | Primary: Delta 3 -Wire | | | Secondary: Wye 4 -Wire | | | |
| | Terminals: Material / Rating | Neutral: Copper/200% | | Line: Copper/100% | | Ground: Mechanical Lug | | |
| Regulatory Efficiency | Coils / Construction | Copper; Welded/Brazed Internal Connections | | | | | | |
| | Core / Configuration | 3 Leg, Low loss super grain-oriented electrical steel | | | | | | |
| | Insulation Class / Type | 220 (UL Listed, E221932) Nomex based | | | | | | |
| | Impregnant / Properties | Epoxy/Polyester co-polymer; Dielectric 3.2kV/mil. x 3 mil. build; Low VOCs | | | | | | |
| | B.I.L. | 10kV (Primary & Secondary) | | | | | | |
| Regulatory Efficiency | 35% Load @ 75 °C [%] | ≥ 99.24 ; <i>tested per DOE 10CFR431*, Subpart K, & CSA C802.2</i> | | | | | | |
| | Reference levels: | (500kVA): DOE 2016: 99.14%; CSA C802.2-12: 98.70% | | | | | | |
| <i>*Powersmiths exceeds DOE test requirements by guaranteeing performance of every unit</i> | | | | | | | | |
| Load Performance | Percent Loading: | No Load | 16.7% | 25.0% | 35.0% | 50.0% | 75.0% | 100.0% |
| | Linear Load Efficiency ⁺ [%] | | 99.20 | 99.30 | 99.28 | 99.17 | 98.84 | 98.38 |
| | Linear Load Loss ⁺ [W] | 504 | 673 | 884 | 1259 | 2090 | 4351 | 8187 |
| | [BTU/hr] | 1720 | 2296 | 3016 | 4296 | 7131 | 14846 | 27934 |
| | K7 Load (IEEE C57.110) ⁺ [%] | | 99.2 | 99.2 | 99.2 | 99.0 | 98.6 | 97.9 |
| ⁺ Calculated @ 20°C Amb. Accuracy: Linear Loss ± 3% measurement tolerance per DOE 10CFR431; Efficiencies ± 0.05% | | | | | | | | |
| General Operation | Temperature Rise/Ambient [°C] | < 130 (Full Linear Load) | | | 40 (Per ANSI C57.96.2013) | | | |
| | Regulation (full load) [%] | 1.5 (Cos Φ=1.0) | | | 3.9 (Cos Φ =0.8) | | | |
| | Excitation [A] | 2.4 (~ Effective Current) | | | | | | |
| | Audible Noise [dBA] | 57 (3 dBA less than NEMA ST-20 requirement 301-500kVA) | | | | | | |
| Impedance | Z: +/- Sequence [%] | Z: 4.6 | X: 4.4 | R: 1.4 | (per ANSI C57.12.91/UL1561) | | | |
| | N/A | Zo: | Xo: | Ro: | (per ANSI C57.12.91) | | | |
| Abnormal | Shortcircuit Current** [A] | Symmetrical Bolted faults | | Primary: 13,241 | | Secondary: 30,556 | | |
| | **Zero Upstream Impedance | Asymmetrical Bolted faults | | L - N: 30,556 | | L - L: 26,462 | | |
| | Inrush x FLA /@ % Source | 3 /@ 3% | 6 /@ 1½% | 9 /@ 0% | (per IEEE 389) | | | |
| Enclosure Type & Installation | Type / Environment | 2: Indoor Ventilated; 3R: Sprinkler/Weather Shields (Field Installed Option) | | | | | | |
| | Installation / Location | Non-combustible floor; Restricted Access Area, non-public accessible | | | | | | |
| | Ventilation Clearances | 2" to rear wall; zero clearance for sides (Grill opening < 1/2", Vermin Resistant) | | | | | | |
| Physical | Paint / Finish | Polyester Powder Coat, Semi-Gloss, Textured; Color: Green (RAL 6018) | | | | | | |
| | Size & Drawing | TE1: (W: 52" D: 38" H: 61"); Drawing: 300-003780-800 | | | | | | |
| Quality, Standards & Certification | Net Weight | 2920 lbs / 1327 kg | | | | | | |
| | Quality | ISO 9001-2000: Quality Management System ISO 14001-2004: Environmental Management System ISO 17025: Efficiency Measurement Certification (CSA) | | | | | | |
| | Design / Build / Test | UL 1561; CSA C22.2-47; NEMA ST-20; ANSI C57.91 | | | | | | |
| Additional Specified Attributes & Options: (As listed) | Certifications | UL/CUL Listed; CSA Certified | | | | | <i>UL1561 Listed for Non-linear loads</i> | |
| | | | | | | | | |



POWERSMITHS INTERNATIONAL CORP.

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powersmiths.com

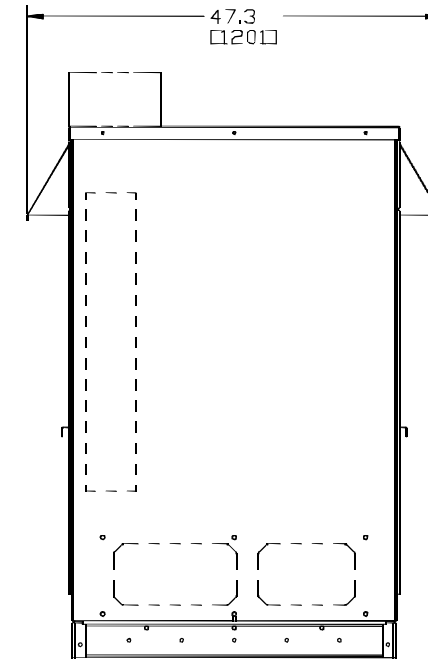
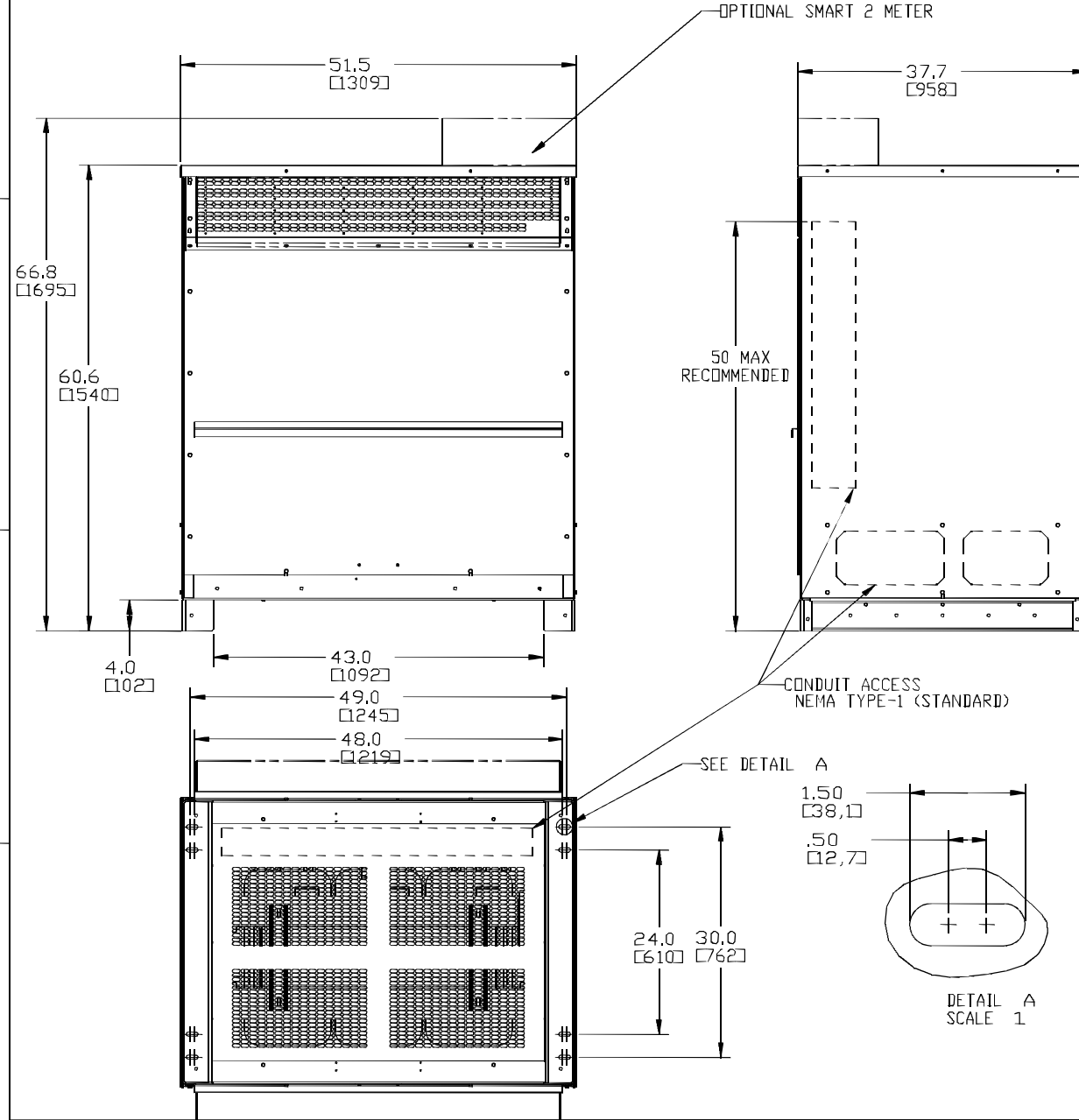
OPAL Series Model: E-Saver-33L-500-480-208

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|-----------|----------|-------|-----------|----------|------------------------|
| Prepared: | D. Faria | Date: | 30-Nov-15 | Part No: | 222-004413 -100 |
| Revised: | | Date: | 25-Jan-16 | Doc No: | 222-004413 -800 |
| | | | | Rev: | A01 |

Note: Powersmiths International Corp. reserves the right to revise these specifications without notice; refer to most recent document revision

Ref. Project/Unit ID:

| REV | ECD No. | DESCRIPTION |
|-----|---------|-----------------------|
| A00 | | RELEASED |
| A01 | | ADDED WIDTH DIMENSION |
| A02 | | |
| A03 | | |
| A04 | | |



UL/NEMA TYPE-2/3R (OPTION WHEN SPECIFIED)
NOTE: DRIP SHIELDS INSTALLED AT SITE

| | | | | | |
|---|--|---|--|--|--|
| UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. | | BY DATE | | POWERSMITHS INTERNATIONAL CORP | |
| TOLERANCES ARE: | | APPROVED DT 08-Sep-01 | | 10 Devon Rd. Brampton, Ontario, Canada, L6T 5B5 | |
| 1-PLACE DECIMAL ±.02 ±.5 | | APPROVED | | TITLE | |
| 2-PLACE DECIMAL ±.010 ±.25 | | APPROVED | | OUTLINE, TE1 CASE | |
| 3-PLACE DECIMAL ±.005 ±.10 | | APPROVED | | DRAWING NO. | |
| ANGULAR ±.125° ±1/2° | | APPROVED | | 300-003780-800 | |
| SURFACE FINISH: 125 | | UNLESS OTHERWISE NOTED REMOVE ALL BURRS AND SWARP EDGES | | REV. | |
| MATERIAL | | SCALE 0.100 | | A01 | |
| FINISH | | REF: | | SHEET 1 of 1 | |

PRO/ENGINEER