

**T1000-30H**

**Ultra Efficient Harmonic Mitigating Dry Type Transformer**

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

<b>Electrical Ratings</b>	<b>Power [kVA]</b>	<b>500</b>						
	Continous Overload [kVA]	600 <i>Max. Linear Load; 1 THD &lt; 0.05 p.u. &lt; 30°C Amb.</i>						
	<b>Primary [V]</b>	<b>480</b>						
	<b>Secondaries [V]</b>	<b>120/208</b>						
	Frequency [Hz]/Phase/Shift	60 / 3-Phase <i>0 deg.</i>						
	Primary Taps	2 x 2 1/2 % FCAN; 4 x 2 1/2 % FCBN; (6 Taps)						
	K-Rating (IEEE C57.110) [K]	K20 @ 100%; >K30 @ 80%; <i>Refer Powersmiths published tables for other ratings</i>						
<b>Topology &amp; Materials</b>	Electrical Topology	Primary: Delta 3 -Wire		Secondary: Zig-Zag 4-wire				
	Terminals: Material / Rating	Neutral: Copper/200%		Line: Copper/100%		Ground: Copper Bus		
	Coils / Construction	Copper; Welded/Brazed Internal Connections						
	Core / Configuration	3 Leg, Low loss super grain-oriented electrical steel						
	Insulation Class / Type	220 ( <i>UL Listed, E221932</i> )		Nomex based				
	Impregnant / Properties	Epoxy/Polyester co-polymer; Dielectric 3.2kV/mil. x 3 mil. build; Low VOCs						
	B.I.L.	10kV (Primary & Secondary)						
<b>Regulatory Efficiency</b>	<b>35% Load @ 75 °C [%]</b>	<b>≥ 99.23</b> ; <i>tested per DOE 10CFR431*, Subpart K, &amp; 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 min. stated efficiency of every unit</i>								
<b>Load Performance</b>	Percent Loading:	<b>No Load</b>	<b>16.7%</b>	<b>25.0%</b>	<b>35.0%</b>	<b>50.0%</b>	<b>75.0%</b>	<b>100.0%</b>
	Linear Load Efficiency <sup>+</sup> [%]		99.10	99.24	99.26	99.18	98.92	98.54
	Linear Load Loss <sup>+</sup> [W]	<b>598</b>	751	943	1283	2028	4016	7250
	[BTU/hr]	2040	2562	3218	4378	6920	13703	24737
	K13 Load (IEEE C57.110)* [%]		99.0	99.1	99.1	98.9	98.5	97.9
<i>+ Calculated @ 20°C Amb. Accuracy: Loss ± 3% measurement tolerance per DOE 10CFR431; Efficiencies ± 0.05%; Non-linear Load L-N</i>								
<b>General Operation</b>	Temperature Rise/Ambient [°C]	<b>&lt; 105</b> ( <i>Full Linear Load</i> )			40 ( <i>Per ANSI C57.96.2013</i> )			
	Regulation ( <i>full load</i> ) [%]	1.1 ( <i>Cos Φ=1.0</i> )			3.5 ( <i>Cos Φ =0.8</i> )			
	Excitation [A]	2.8 ( <i>~ Effective Current</i> )						
	Audible Noise [dBA]	57 (6 dBA less than NEMA ST-20 > K13 requirement 301-500kVA)						
<b>Impedance</b>	Z: +/- Sequence [%]	Z: 4.2	X: 4.0	R: 1.1	<i>(per ANSI C57.12.91/UL1561)</i>			
	Zero Sequence [%]	Zo: 0.73	Xo: 0.46	Ro: 0.57	<i>(per ANSI C57.12.91)</i>			
<b>Abnormal</b>	Shortcircuit Current** [A]	Symmetrical Bolted faults		Primary: 14,483		Secondary: 33,422		
	**Zero Upstream Impedance	Asymmetrical Bolted faults		L - N: 46,791		L - L: 40,521		
	Inrush x FLA /@ % Source	4 /@ 3%	7 /@ 1½%	10 /@ 0%	<i>(per IEEE 389)</i>			
<b>Enclosure Type &amp; Installation</b>	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)						
	Paint / Finish	Polyester Powder Coat, Semi-Gloss, Textured; Color: Green (RAL 6018)						
<b>Physical</b>	Size & Drawing	TE1: (W: 52" D: 38" H: 61"); Drawing: 300-003780-800						
	Net Weight	3125 lbs / 1420 kg						
<b>Quality, Standards &amp; Certification</b>	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						
	Certifications	<b>UL/CUL Listed; CSA Certified</b> <i>UL1561 Listed for Non-linear loads</i>						
<b>Additional Specified Attributes &amp; Options:</b> <i>(As listed)</i>	Shields (1S):	1 Electrostatic Shield > 60 (CM Attenuation @ 10kHz)						
	Harmonic Treatment:	Triplens (3rd, 9th...) plus 5th, 7th with complimentary system 30° Phase shifts						



**POWERSMITHS INTERNATIONAL CORP.**

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**OPAL Series Model: T1000-30H-500-0-480-208**

Prepared: D. Faria

Date: 2-Feb-16

Part No: 222-004645 -100

Revised:

Date:

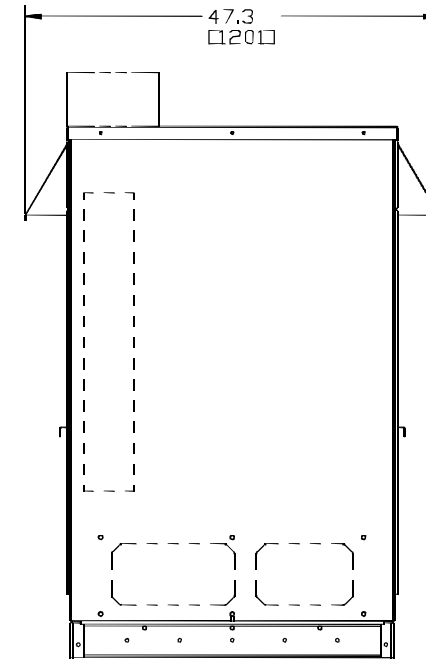
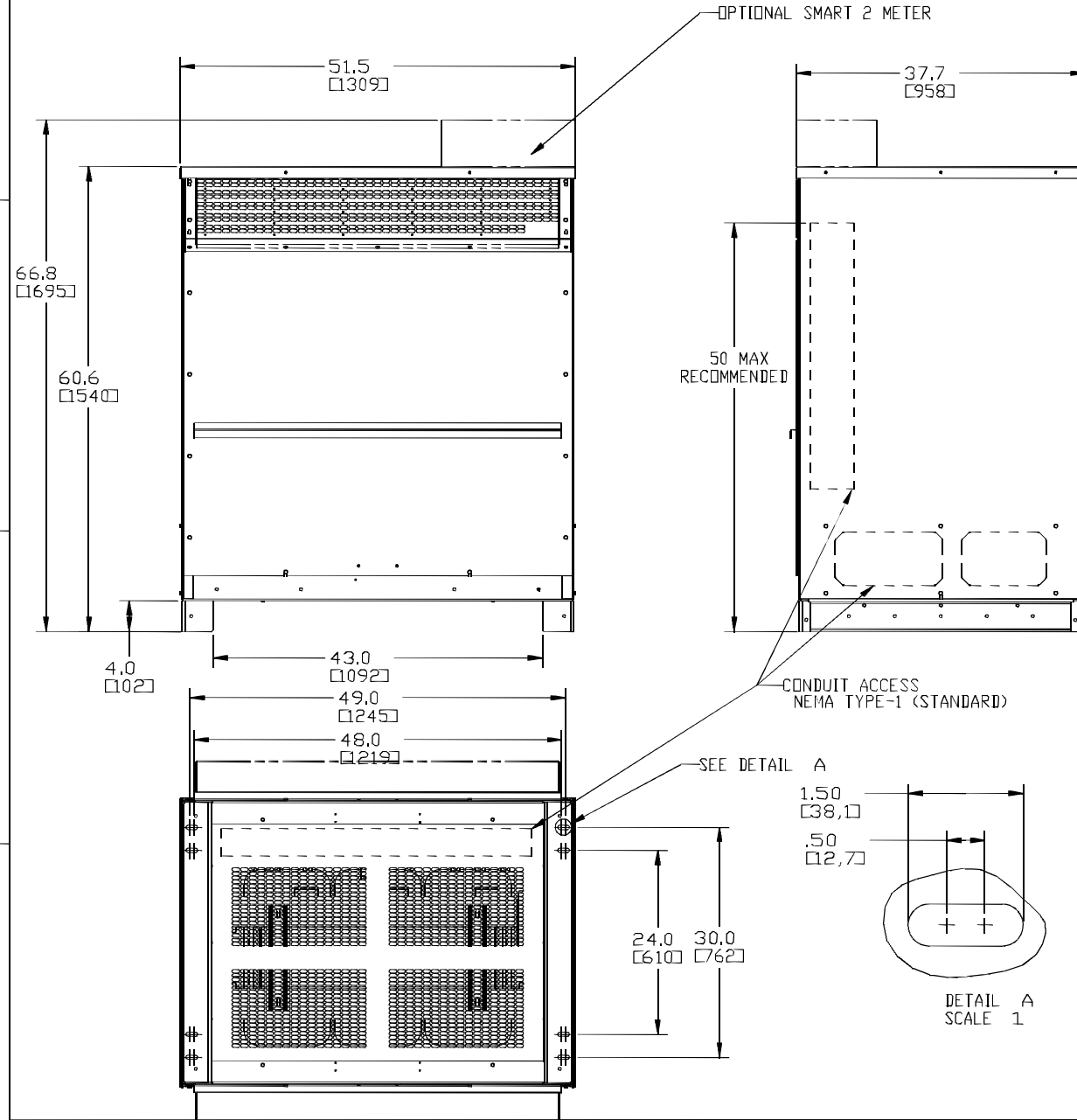
Doc No: 222-004645 -800

Rev: A00

*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