

T1000-30H

Ultra Efficient Harmonic Mitigating Dry Type Transformer

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

Electrical Ratings	Power [kVA]	30						
	Continuous Overload [kVA]	36 <i>Max. Linear Load; 1 THD < 0.05 p.u. < 30°C Amb.</i>						
	Primary [V]	480						
	Secondaries [V]	120/208						
Topology & Materials	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>						
	Electrical Topology	Primary: Delta 3 -Wire	Secondary: Zig-Zag 4-wire					
Regulatory Efficiency	Terminals: Material / Rating	Neutral: Copper/200%	Line: Copper/100%	Ground: Mechanical Lug				
	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						
Regulatory Efficiency	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 [%]	≥ 98.40 ; <i>tested per DOE 10CFR431*, Subpart K, & CSA C802.2</i>						
	Reference levels:	(30kVA): DOE 2016: 98.23%; CSA C802.2-12: 97.50%						
<i>*Powersmiths exceeds DOE test requirements by guaranteeing min. stated efficiency 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 ⁺ [%]		98.15	98.46	98.53	98.39	97.91	97.22
	Linear Load Loss ⁺ [W]	76	94	117	157	244	474	849
	[BTU/hr]	259	321	399	536	833	1617	2897
Load Performance	K13 Load (IEEE C57.110)* [%]		98.1	98.3	98.3	98.1	97.4	96.4
	<i>+ Calculated @ 20°C Amb. Accuracy: Loss ± 3% measurement tolerance per DOE 10CFR431; Efficiencies ± 0.05%; Non-linear Load L-N</i>							
General Operation	Temperature Rise/Ambient [°C]	< 105 (Full Linear Load)			40 (Per ANSI C57.96.2013)			
	Regulation (full load) [%]	2.2 (Cos Φ=1.0)			4 (Cos Φ =0.8)			
	Excitation [A]	0.4 (~ Effective Current)						
	Audible Noise [dBA]	40 (5 dBA less than NEMA ST-20 > K13 requirement 9.1-30kVA)						
Impedance	Z: +/- Sequence [%]	Z: 4.1	X: 3.5	R: 2.2	(per ANSI C57.12.91/UL1561)			
	Zero Sequence [%]	Zo: 1.18	Xo: 0.24	Ro: 1.15	(per ANSI C57.12.91)			
Abnormal	Shortcircuit Current** [A]	Symmetrical Bolted faults		Primary: 890	Secondary: 2,054			
	**Zero Upstream Impedance	Asymmetrical Bolted faults		L - N: 2,876	L - L: 2,490			
	Inrush x FLA /@ % Source	5 /@ 3%	10 /@ 1½%	16 /@ 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	TBO: (W: 26" D: 18" H: 30"); Drawing: 300-003760-800						
Quality, Standards & Certification	Net Weight	505 lbs / 230 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: <i>(As listed)</i>	Certifications	UL/CUL Listed; CSA Certified <i>UL1561 Listed for Non-linear loads</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-30-0-480-208

Prepared: D. Faria

Date: 1-Feb-16

Part No: **200-004619 -100**

Revised:

Date:

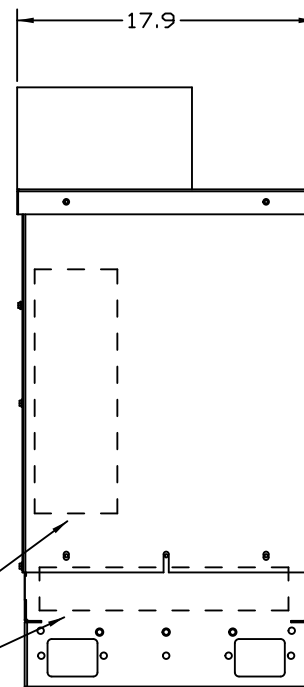
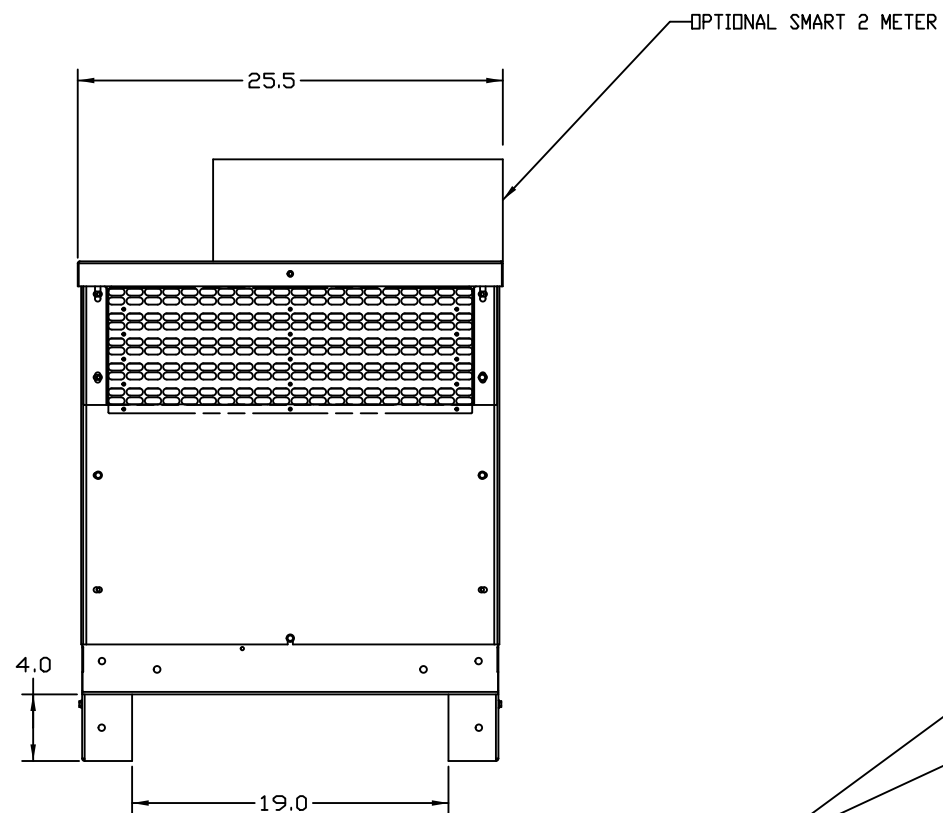
Doc No: **200-004619 -800**

Rev: **A00**

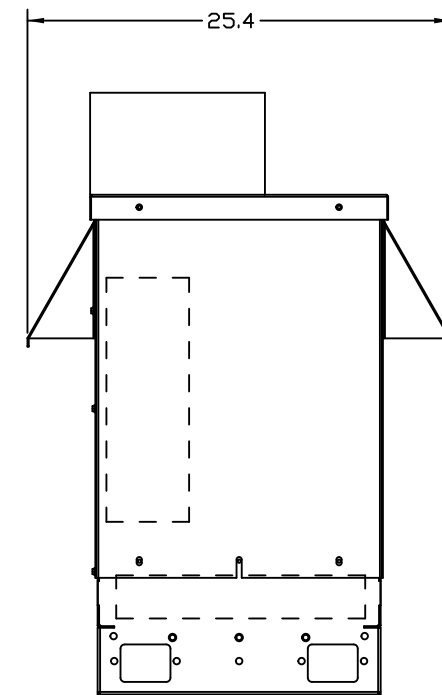
Note: Powersmiths International Corp. reserves the right to revise these specifications without notice; refer to most recent document revision

Ref. Project/Unit ID:

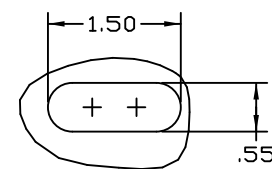
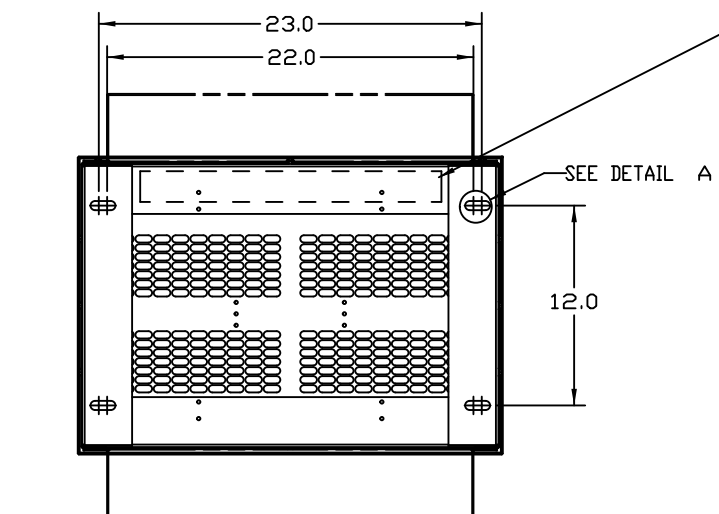
REV	ECD No.	DESCRIPTION



NEMA TYPE-1 (STANDARD)



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



DETAIL A
SCALE 1.000

<small>UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES.</small> <small>TOLERANCES ARE:</small> 1-PLACE DECIMAL ±.02 2-PLACE DECIMAL ±.010 3-PLACE DECIMAL ±.005 ANGULAR ±1/2° <small>SURFACE FINISH: 125</small>	<small>BY</small> APPROVED DT 19-Jan-14	<small>DATE</small> 19-Jan-14	POWERSMITHS INTERNATIONAL CORP 10 Devon Rd. Brimley, Ontario, Canada, L6T 5B5 TBO CASE OUTLINE	
	<small>APPROVED</small> <small>APPROVED</small>	<small>APPROVED</small> <small>APPROVED</small>		
	<small>UNLESS OTHERWISE NOTED REMOVE ALL BURRS AND SHARP EDGES</small> SCALE 0.188	<small>DRAWING NO.</small> 300-003760-800		<small>REV.</small> A00
	<small>REF:</small>	<small>SHEET</small> 1 of 1		<small>PRO/ENGINEER</small>