T1000-C3 Transformer

APPLICATIONS

Powersmiths T1000-C3 transformers are selected to improve power quality and reduce electricity waste. Optimized for lowest life cycle cost, the T1000-C3 reduces waste by as much as 74% while treating power system harmonics in the electrical current that can disrupt equipment operation. The T1000-C3 enhances equipment reliability, lowers operating costs and facilitates compliance with IEEE-519 in commercial and industrial facilities.

DESCRIPTION AND CHARACTERISTICS

The T1000-C3 treats the 3rd harmonic through secondary flux cancellation and reduces fundamental current imbalance. Unlike delta-wye transformers, 3rd and other zero sequence currents in the T1000-C3 do not couple into the primary winding. 5th and 7th harmonics are treated on a system basis by alternating phase shifted models within the facility.

QUIET OPERATION

Workplace productivity can be compromised when noisy transformers are located close to people. To meet this challenge, Powersmiths transformers embed structural and acoustic treatments that combine to ensure quiet-operation. Powersmiths incorporates noise tests into our ISO 9001 production procedures for every transformer.

OPTIONAL INTEGRATED METERING

To facilitate on-site commissioning and monitoring, Powersmiths' SMART meter can be integrated into the transformer. SMART is an energy and power meter that serves as a data acquisition system, providing on-going energy and power quality data for the building's energy management systems and education for sustainability software such as Powersmiths Interactive Learning System. An optional port is available to provide safe external access to live transformer primary and secondary voltages and currents; operating temperature and TVSS status, without opening the transformer enclosure.

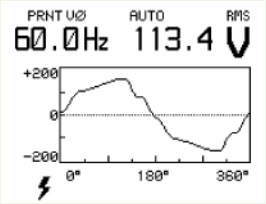
ENVIRONMENTAL BENEFIT

The T1000-C3 is built in an ISO 9001 (quality management) and ISO 14001 (environmental management) certified facility. Throughout the manufacturing process Powersmiths takes steps to ensure that waste is eliminated and hazardous materials are avoided. Because Powersmiths transformers generate lower losses, they reduce power drawn from generating stations resulting in less smog and lower greenhouse gas emissions.

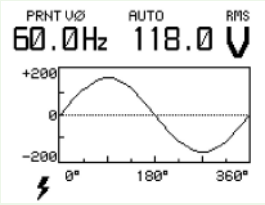
TESTING AND WARRANTY

During manufacturing and assembly the T1000-C3 is subjected to rigorous testing to ensure: efficiency under various load profiles and loading conditions; quiet operation; and insulation integrity. Powersmiths is the only manufacturer to production-test transformers with actual computer-power loading in an ISO 9001 environment. Data can be provided for individual units by selecting the NLT option with your order.

The T1000-C3's long life and dependable performance is backed up by Powersmiths' industry leading 25 year pro-rated warranty. The warranty is automatically extended to 40 years when Powersmiths Cyberhawk MPC monitor, protection and control system is installed at the building entrance.



Voltage Waveform Before



Voltage Waveform with T1000

KEY FEATURES

- Provides Class 3* level energy efficiency to reduce electricity waste
- Improves power quality to facilitate system wide compliance with IEEE-519
- Significantly exceeds NEMA TP-1 efficiency for low operating cost over life of transformer
- Produced in an ISO 9001 and ISO 14001 certified facility assuring high quality and low environmental impact
- Optimized for lowest life cycle cost

** US Department of Energy Candidate Standard Level 3*

STANDARD CONFIGURATION

Powersmiths T1000-C3 is a 3-phase common-core copper-wound dry type transformer, built in an ISO 9001 and ISO14001 certified facility to NEMA ST-20 and other applicable ANSI and IEEE standards. Secondary windings have less that 0.3% zero sequence reactance and low zero sequence impedance.

The T1000-C3 has 220ºC class insulation and 115ºC operating temperature rise, a single electrostatic shield, 60Hz rating and comes standard in a NEMA 2 ventilated indoor enclosure. The standard configuration of the T1000-C3 meets the efficiency requirements of Candidate Standard Level 3 (CSL-3*). These levels significantly exceed NEMA TP -1 efficiency requirements.

SELECT

kVA: Rating of unit (15-1000 kVA, up to 5000 kVA)
DEG: 0 or 30 degrees phase shift
PV: Primary voltage, (600, 480, 415, 400, 380, 208, up to 15kV)
SV: Secondary voltage (208/120V, 480/277V, 600/347V, others available)

SAMPLE PART NUMBER

T1000-C3-75-0-480-208

* FEDERAL REGISTER – US Department of Energy, Office of Energy Efficiency and Renewable Energy. 10 CFR Part 430, July 29, 2004. Energy Conservation Program for Commercial and Industrial Equipment: Energy Conservation Standards for Distribution Transformers; Proposed Rule

TECHNICAL DATA

kVA	Impedance (+/- SEQ.)	Weight (lbs)	Case Size (Inches)
15	3.5 - 5.5%	220 - 260	A (18W x 17D x 27H)
30	3.0 - 5.0%	350 - 420	B (26W x 18D x 30H)
45	3.0 - 5.0%	450 - 550	B (26W x 18D x 30H)
75	3.0 - 5.0%	700 - 800	C (32W x 22D x 40H)
112.5	3.0 - 5.0%	900 - 1100	C (32W x 22D x 40H)
150	3.0 - 5.0%	1100 - 1300	D (38W x 27D x 48H)
225	3.0 - 5.0%	1550 - 1850	D+ (38W x 32D x 52H)
300	3.0 - 5.0%	1800 - 2000	D+ (38W x 32D x 52H)
500	3.0 - 6.0%	3000 - 3300	E+ (52W x 38D x 61H)
750	3.0 - 6.0%	3800 - 4800	F (64W x 47D x 67H)

The above data applies to configurations up to 600V, with NEMA 2 enclosure and standard temperature rise. Selection of some options may change enclosure size and weight. Consult factory for detailed product data sheet for these and other configurations.
*Specific case used determined by factory unless specified. Up to 5000kVA, 15kV class available.

AVAILABLE OPTIONS

SMART1: Integrated metering port

SMART2: Integrated Power & Energy Meter

SMART3: Integrated Meter with Web access

CYBERHAWK-TX: Efficiency & Power Meter

N3R: NEMA 3R, ventilated enclosure

T80: 80 deg. C operating Temp. rise

F50: 50Hz design

2S: Dual electrostatic shields

3S: Triple electrostatic shields

ECO: ECOLOGO certified

SPD: (120/208V OR 277/480V)
- **PRO80:** 80kA, 7 mode, Filter
- **PRO120:**120kA, 7 mode, Filter
- **PRO160:** 160kA, 7 mode, Filter
- **PRO200:** 200kA, 7 mode, Filter
- **PRO240:** 240kA, 7 mode, Filter

PROXX: Where xx is custom ID

LK: Lug kit, screw-type

COL: Color other than the factory standard

TSB: Terminal Safety Barrier

TS: Thermal Sensors at 170˚C and 200˚C

NLT: Nonlinear load test

SE: Sensitive Environment, extra low noise

C2AL: DOE class 2 efficiency, with aluminum windings

Warranty: Our Commitment to lasting performance is spelled out in the longest transformer warranty in the business – 25 years pro-rated. 40 year pro-rated warranty with the installation of the Cyberhawk MPC at the building entrance. T1000 is a trademark of Powersmiths International Corp.

Technical specification subject to change without notice.

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