PQI HarMitigator™

Distribution TransFilter™

Type SVY Dual Output Data Center Transformer for 240V & 120V Server Loads

A Solution for Distribution System and Switch-Mode Power Supply Efficiency Improvement

PRODUCT BENEFITS

- Provides optimum voltage for 240V & 120V server loads
- Reduces 240V server load current by 15.4% and I^2R losses by 33.2% when compared to a conventional 208-volt source
- Improves switch-mode power supply's efficiency
- Reduces 'penalty losses' due to harmonic currents
- Reduces heat in the server racks and A/C loading
- Provides an attractive 'payback' and return-on-investment
- Reduces THD_V to less than 5% at non-linear server loads
- Improves switch-mode power supply's 'ride-through' capability
- Assures system compatibility with sensitive server loads
- Exceeds NEMA TP1-2002 & CSA C802.2-00 linear efficiency requirements
- Optional *e-Rated*® unit exceeds NEMA TP1-2002 efficiency requirements under severe non-linear loading (≤100% THD_I)

PRODUCT DESCRIPTION

Type SVY ***Distribution TransFilters***™ for 240-volt and 120-volt Server Loads are high efficiency, three-phase, four-wire, dual output harmonic mitigating transformers that have been designed to supply phase-to-phase connected 240-volt server loads and/or phase-to-neutral connected 120-volt server loads. Both outputs are fully rated for maximum application flexibility.

If one or both load groups are non-linear, Type SVY transformers will cancel the positive- and negative-sequence harmonic currents within their dual output windings and/or their common primary bus, when two or more transformers are used in combination.

Type SVY transformers are cost-effective alternatives to conventional transformers that supply 240-volt server loads at 208-volts. These specialized transformers exceed the efficiency requirements of NEMA TP1-2002 and CSA C802.2-00. Optional ***e-Rated***® transformers exceed these linear efficiency requirements under the most severe non-linear loading (≤100% THD_I). Type SVY transformers provide the most attractive payback and return-on-investment in the industry.

240V Server Loads – Type SVY transformers' 240-volt secondary windings are connected in a modified 'wye' configuration which is solidly grounded. This configuration clamps their phase-to-ground voltages at 139-volts (240V/√3) during normal operation or a phase-to-ground system fault. The transformers' 240-volt outputs reduce their servers' load currents by 15.4% and I^2R losses by more than 33.2%, when compared to conventional 208-volt sources. This results in a significant reduction in generated heat and A/C loading.

120V Server Loads – Type SVY transformers' 120/208-volt secondary winding configurations cancel zero-sequence harmonic flux within their windings. As a result, they provide ultra-low zero-sequence impedance, a characteristic that significantly reduces voltage distortion to less than 5% THD_V and 60Hz sine-wave 'flat-topping' at their 120-volt server loads. In addition to eliminating zero-sequence harmonic flux in the magnetic core, this secondary winding configuration also eliminates zero-sequence harmonic current in the transformers' primary 'delta' connected windings.

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SELECTION TABLES

Weights & Measures

kVA	Enclosure Size (Inches)	Weight (lbs.) *
15	20.50W x 20.75D x 26.25H	310
30	20.50W x 20.75D x 26.25H	420
45	24.50W x 22.00D x 31.50H	580
75	30.75W x 27.75D x 30.75H	900
112.5	30.75W x 27.75D x 30.75H	1200
150	40.00W x 31.00D x 44.00H	1550
225	40.00W x 31.00D x 44.00H	2200
300	40.00W x 31.00D x 44.00H	2400
500	46.00W x 40.00D x 62.00H	2900
Other up to 3500kVA		

* = Approx

The above weights and measures apply to dual output configurations up to 600V with a NEMA 1 enclosure and a standard temperature rise (150°). Multiple output units and some options may change the enclosure size and weights. Consult PQI for detailed product information for these and other configurations. Enclosure provided will be determined by PQI unless otherwise specified.

Technical Specifications

UL Listed
CSA Approved
Related Standards: UL-506, ANSI C75.110
NEMA ST-20, NEMA TP1-2002
CSA C9-M1981, CSA 22.2 No.47-1977
CSA C802.2-00
Voltage Class: 1.2kV [Standards to 35kV]
BIL Rating: 10kV [Standard for Class]
Voltage: 480[600]:139/240:120/208
Frequency: 60Hz [50Hz]
Type: ANN
Temp. Rise: 150°C [Other]
Zero-Seq. Imp: <0.95% @ 60Hz for 120/208V Output
Zero-Seq. React: <0.30% @ 60Hz for 120/208V Output
Insulation Class: 220°C

Definitions

Type: SVY (Delta:Zigzag:Wye)
ANN: Cooling Medium – Air, Internal & External Circulation – Natural
Hz: Frequency
kVA: Power Rating of Transformer
PV: Primary Voltage
SV: Secondary Voltage
Temp: Temperature Rise: 150°C (Max.) [130°C][115°C][80°C][Other]

Options

Phase Shift: 30°
Efficiency *e-Rated*®: ER
Enclosure NEMA 1: N1 (Standard)
NEMA 3R: N3R (Optional)
Other: (Optional)
Electrostatic Shield: ES – Single
2ES – Dual
3ES – Triple
Thermal Sensors: TS
Color: PQI White [ASA 61 Gray][Other]

Catalog Number Configuration

Type w/ Phase Shift–Hz–kVA–PV:SV–Temp–Options

Sample Catalog Number

SVY30–60–225–480:139/240:120/208–150–ER–N3R–ES–TS

PQI Warranty – 10 years pro-rated.
All specifications are subject to change without notice. Revision 1, September 2007

Proudly manufactured in the USA.

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