

Energy Station TX™

HIGH PERFORMANCE OPAL™ TRANSFORMERS WITH INTEGRATED BREAKER CONFIGURATIONS

APPLICATION

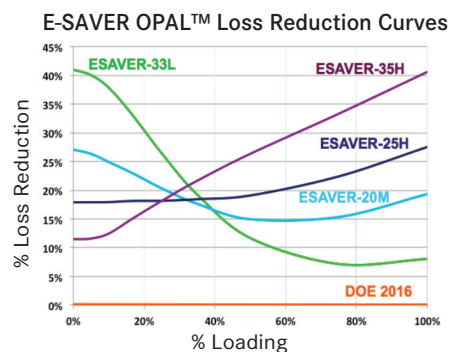
The Energy Station TX™ is designed for applications like data centers where integrated power distribution provides the best solution for system integration. This unit has the options to integrate a mix of primary and secondary breakers, on the sides or top of the transformer, providing a compact and cost-effective strategy for concentrated high-density power distribution, and all in one UL Listed unit.

BENEFITS

The Energy Station TX provides a compact, turnkey UL Listed solution to power distribution. The integrated package is pre-commissioned at the factory, so that installation can be as simple as connecting the input power, the load and network communication cable. Other benefits include reduction of the overall electrical system footprint, application-specific system engineering for load proximity, as well as managed inrush currents, kAIC ratings and arc flash levels. This flexible, customer-centric approach allows for your choice of OPAL™ transformer models, breaker types (including LSIG), as well as metering and safer maintainability options.

OPTIMIZED PERFORMANCE FOR THE APPLICATION LOAD

The transformer plays a complex role in the electrical systems of high power density datacenters, recognizing this, Powersmiths has developed a design best practice called OPAL that helps to identify solutions to optimize performance of these systems. OPAL considers the system as a whole, optimizing for goals including efficiency, impedance, arc flash, fault level, inrush current, harmonics, and more. OPAL utilizes years of experience and a tight feedback loop between design, onsite manufacturing, customer input and extensive ongoing real-world operating performance verification. All OPAL E-Saver and T1000 transformer models are available for integration into the Energy Station TX.



BY GOING BEYOND NEW LEGAL MINIMUM DOE 2016 IDENTIFIES BILLIONS IN SAVINGS

Most manufacturers offer low-voltage transformers just meeting the new U.S. Dept. of Energy law¹ (DOE 2016), setting minimum efficiency at a single required 35% load point, under an ideal sine wave factory test profile, sacrificing performance elsewhere. The DOE quantifies the savings opportunity for going beyond DOE 2016 minimum standard to be in the billions of dollars. Furthermore, the DOE states that lifecycle savings can be maximized by optimizing for real-world loading. Powersmiths OPAL enables customers to access these savings – backed by real-world performance verification.



Above: Energy Station TX™, 1000 kVA, with output breakers (right side), integrated Cyberhawk™ monitoring, rotatable IR Port and hinged door options

RIGHT-SIZING KVA TO DOWNSTREAM DISTRIBUTION

Understanding that optimized datacenter capacity is a key priority, Powersmiths right-sizes the transformer kVA to the capacity of downstream electrical distribution. As a result, capital cost, operating cost and footprint reductions can be substantial – through smaller transformers, breakers, conductors, and distribution panels.

METERING OPTION

The integrated Cyberhawk™ metering provides power and power quality data as well as losses, efficiency, load profiles, energy, transformer coil temperatures, and a comprehensive event log.

ENHANCED SAFETY FEATURES

The Energy Station TX is designed for access, maintainability and reduced arc flash risk. The meter is installed in its own compartment. Breakers are equipped with hinged doors and internal dead front panel. Options include lockable-hinged transformer door, 360° Rotatable IR Port™, and dedicated breaker-mounted IR windows.

APPROPRIATE K-RATING

As part of the OPAL design optimization, the Energy Station TX™ is configured to the appropriate k-ratings. Even though harmonic content in most datacenters is low, it is still beyond the threshold of a General Purpose Transformer (load <5% THD). The extra harmonic heat is especially important in Datacenters since transformers can reach close to full load in some conditions, and the loss of capacity that is assumed to be there can result in dramatic failure and downtime. Typical K-rating requirements are K4 and higher in order to have a valid UL listing for the application.

ENVIRONMENTAL/GREEN BUILDING/LEED®/NET ZERO

By going meaningfully beyond the DOE 2016 baseline efficiency, the Energy Station TX™ contributes to green building, LEED®, Net Zero and carbon footprint reduction goals. Additional benefits of Powersmiths products include our ISO14001 certified manufacturing, integrated metering options and ability to integrate with the Powersmiths WOW™ Sustainability Management Platform.

CERTIFICATIONS & TESTING

Powersmiths certifications include ISO 9001 (Quality), ISO 14001 (Environment), ISO 17025 (Efficiency Test Lab), UL and CSA. Powersmiths has a production integrated nonlinear load test program that enables efficiency verification under real-world conditions, as well as IPMVP compliant field measurement of losses and efficiency, and Certified Test Lab Load Profile test reports.

GUARANTEED PERFORMANCE FOR 32 YEARS

Powersmiths guarantees that every transformer we manufacture meets our published technical data, and furthermore, that this performance is met over the full term of the 32-year pro-rated warranty. Being able to trust that savings are both real and long-term is part of why organizations choose Powersmiths.

¹U.S. Department of Energy, 10 CFR Part 431, [Docket No. EERE-2010-BT-STD-0048] Energy Conservation Program: Energy Conservation Standards for Distribution Transformers; Final Rule, April 18, 2013

TECHNICAL SPECIFICATIONS

The Energy Station TX™ comes standard in a type-2 ventilated drip-proof indoor enclosure made of heavy gauge steel, finished with epoxy powder coating for durability and low-environmental impact.

The Energy Station TX is UL Listed for 2" rear clearance – a significant improvement over the typical industry 6" limit and is fully UL Listed with the integrated components.

Type-3R sprinkler-proof and outdoor rating options are available.

Transformers: Refer to the product-specific data sheet of the OPAL™ E-Saver or OPAL™ T1000 model to be selected.

Breakers: Flexibility is the key word for breaker selection when configuring your Energy Station TX. The Energy Station TX is available with single or multiple breakers mounted on either side or top of the unit. Understanding that each project is different, Powersmiths is able to integrate a wide-variety of breaker models driven by parameters such as kAIC rating, LSI, LSIG, breaker-integrated metering and more. Schneider (Square D) breakers are our standard, but other options are available – consult the factory for more details.

Cyberhawk™ Metering Options: Integrated Inside or Externally Mounted

There are several integrated metering options. The Cyberhawk TX™ is the preferred metering option of many datacenters thanks to its many advanced features including: unique ability to measure real-time transformer losses and efficiency, a comprehensive event log for power quality parameters, and a built-in communications server with Modbus TCP and BACnet/IP (SMART Sensor Network) options for connection to a BMS or Powersmiths WOW™ Cloud-based software. Local dynamic web pages and data acquisition functions that use short-term logging facilitate system start-up and commissioning during load tests.

Other metering options include Powersmiths SMART2™, SMART3™, Powersmiths Cyberhawk Express™ Meter, as well as breaker-integrated metering.

See each product's respective technical data sheets for comprehensive information.

Rotatable IR Port™ Option: Rotatable & Fixed

Powersmiths' Rotatable IR Port significantly increases the viewable area compared to fixed IR windows, replacing the need to install multiple IR windows to perform thermal scans without opening the enclosure and exposing personnel to live electrical components and associated arc flash hazards. See the IR Port's technical data sheet for more information. Dedicated fixed IR Ports are optional and

OPAL™ E-Saver and T1000 Transformers

Sizes 75 kVA - 1350 kVA

Refer to OPAL™ E-Saver or T1000 product information for transformer technical data and ordering information.



Integrated Breaker Configurations

There are several integrated breaker configurations, providing solutions for smaller footprints, and more flexible layouts.

Cyberhawk TX™ Meters



Option 1: Cyberhawk Meters can be externally mounted on top of smaller transformers

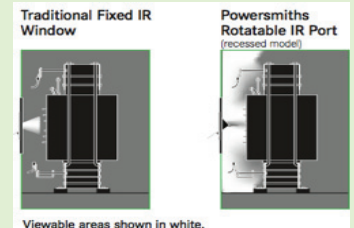


Option 2: For larger products (400 kVA and above), the meter can be integrated inside the unit



Rotatable IR Port™

Significantly increase the viewable interior area of the Energy Station TX™, for hassle-free and safer maintenance checks.



Viewable areas shown in white.

NOTE: Consult factory for detailed product data sheet for these and other configurations.

Refer to technical data sheets for comprehensive information for each specific product, model, kVA, and option selected.

As design optimization is continuous, technical data is updated over time. Please check with Powersmiths for latest revision.

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