Cyberhawk TX™

CUTTING-EDGE INTEGRATED METERING

Traditionally, collecting transformer data was expensive, time consuming, error prone and possibly dangerous due to open enclosure arc flash risk. Powersmiths removes these concerns by integrating Cyberhawk TX into its transformers for safe and reliable data collection. Cyberhawk TX simultaneously measures the input and output(s) of the transformer in one meter to enable accurate measurement of efficiency and losses. Additionally, extensive energy, power and power quality parameters, and comprehensive event logs of user-defined deviations make Cyberhawk TX an invaluable tool for informed management decisions.

Cyberhawk TX shown on 75kVA E-Saver™ transformer

MONITORING FOR ENHANCED SAVINGS & RELIABILITY

- Transformer loading, losses and efficiency
- Comprehensive power and power quality parameters including THD, harmonic spectrum and waveforms
- Half cycle sags/swells, over/under voltage and loss of phase event logs with recorded time stamp showing duration, deviation, and recovery time
- Integrated relay outputs can be triggered by recorded events for annunciation and control features such as remote shutdown of a breaker
- Monitor actual coil and ambient temperatures

APPLICATIONS

- Benchmark, trend and analyze power and energy use
- Understand capacity utilization and identify cost avoidance opportunities through load profiling
- Profile the harmonic content of the load
- Correlate equipment malfunction to power quality anomalies
- Provide context for preventative maintenance findings
- Validate and enhance energy savings
- Support ongoing commissioning and verification for high performance building certifications and frameworks
- Support education for sustainability programs

CONNECTIVITY & WEB-ACCESSIBILITY

Cyberhawk TX is equipped with an RS-485 serial port supporting Modbus RTU and a web-server for Ethernet connectivity. The web-server provides a dynamic browser-based user interface to access real-time data and short-term trends, enables third party systems to read data over an Ethernet based network connection using Modbus TCP or optional BACnet/IP protocol, and allows for data push to Powersmiths WOW™ Sustainability Management Platform. Trend logs stored on the web-server can be downloaded via the network or a computer directly connected to the meter, allowing for further analysis.

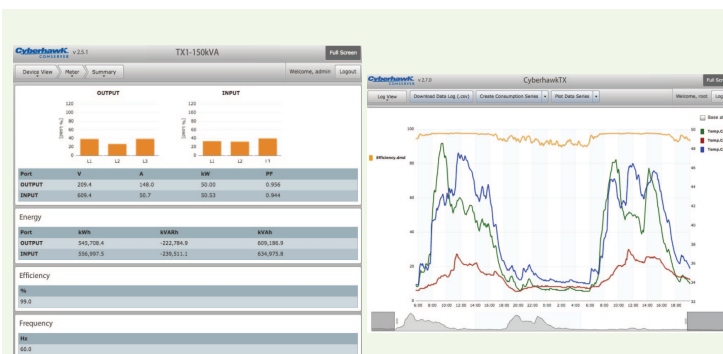## INTEGRATION DURING MANUFACTURING

All integration of Cyberhawk TX is done at the time of transformer manufacture. This simplifies the onsite installation process and greatly reduces overall cost. Each CT is carefully error characterized and this data is incorporated into the meter to provide superior measurement accuracy. Before shipment, each meter is commissioned to ensure accurate install and proper setup to support safe and reliable data collection.

LOW-COST SUBMETERING

Integrated metering provides an alternative to conventional submetering strategies with the potential for substantial time and cost savings; remove supplementary costs such as wiring and conduit installation and meter component integration.

Real-time transformer loading, efficiency and temperature data collected by Cyberhawk TX and viewed through the browser-based remote access interface

KEY FEATURES

- Accurate measurement of transformer efficiency and losses
- Advanced power quality monitoring of input and outputs
- Understand capacity utilization through load profiling
- Time stamped event logging (e.g. sags/swells and under/over voltage) showing duration, deviation and recovery time
- Web-server enables browser-based remote access to live data and trend logs, network connection to building management systems, and data push to Powersmiths WOW™
- Integrated and commissioned at the factory to reduce cost
- Third party UL inspected for safety and reliability

TECHNICAL INFORMATION

Cyberhawk TX is built on Powersmiths' robust Cyberhawk PMP-30 Power Management Platform. This platform provides the backbone of the meter and enables vast analytic capabilities through its detailed power and power quality measurements and event logs.

Packaged in a NEMA type 2 or 3R enclosure to suit the environment of the transformer, Cyberhawk TX is equipped with a user-friendly menu-driven color touchscreen display for local interaction with the unit. The meter is directly powered by the 3-phase voltage sensing lines connected to the transformer, and can operate through poor power quality conditions, including less than 50% voltage on any available phase and even momentary power interruptions. Cyberhawk TX incorporates user settable event/alarm thresholds for magnitude, delay and action, as well as advanced error correction of gain and phase to minimize CT error.

PASSWORD PROTECTED ACCESS

All meter and event/alarm setup, configuration and access to data is password protected and can be set locally at the integrated touchscreen or remotely using the available Powersmiths software installed on a PC platform.

POWERSMITHS WOW™ CERTIFIED

Cyberhawk TX has been tested and certified to be compatible with the cloud-based Powersmiths WOW Sustainability Management Platform to support education, analytics and GHG reporting.

ORDERING INFORMATION

Cyberhawk TX - EM

Connectivity		
	EM	EB
RS-485	✓	✓
Modbus RTU	✓	✓
Web-server	✓	✓
Modbus TCP	✓	✓
Ethernet	✓	✓
Web Accessible	✓	✓
Trend Logs	✓	✓
WOW Push	✓	✓
BACnet/IP		✓

SYSTEM RATINGS:
Models: 600/480V; 208/120V
Operating Range: 50% of nom.; 115% of max. 1 or 3-phase
Ride Through: > 200ms
Power Burden: < 15W, 23VA

METER PORT CONFIGURATIONS:
Input: 3-phase (3 wire), 2-phase (2-wire)
Single Output: 3-phase (4-wire), 1-phase (3-wire)
Dual Output: 3-phase (4-wire), 1-phase (3-wire)
Correction Factors: ±3% CTs, ±3° phase

CT INPUTS:
CT Ratio: Integrated (transformer dependent)

MEASUREMENTS & ACCURACIES:
Meter Accuracy: 0.1% V&I typical, 0.3% Power/Energy
System Accuracy*: 0.1% V, 0.3% I (typical), 0.5% Power/Energy
Ratio Metric Accuracy*: 0.1% Input/Output
*includes CT error characterization data

PROTECTION & CONNECTIONS:
Fused disconnects, Shorting CT terminal blocks

PHYSICAL:
Size: 7.5"H x 17.5"W x 17.75"D; 39 lbs weight
Mounting: Top of transformer enclosure
Enclosure: NEMA 2 or 3R
Temperature: -10˚C to +40˚C

MEMORY TYPES:
Energy: Non-Volatile Ferro-electric
User Settings: Non-Volatile Ferro-electric
Event Logs: Non-Volatile Ferro-electric
Clock: Battery-backed
Firmware: Flash (field reflashable)

ANALOG MEASUREMENTS:
Temperature: 4 x Type A Thermistor inputs (sensors factory installed)
3 coils and 1 ambient: 0°C to 200°C

RELAY OUTPUTS:
Contacts: 2 x SPDT; 5A @ 250VAC/24VDC

EVENTS & ALARMS :
Parameters: > 15
Set Points: > 90
Settings: <, >, delays, action

COMMUNICATION INTERFACE:
RS-485: 2 x half-duplex, 240VAC, 19.2kB
Ethernet: 10/100 BaseT
IP Addressing: Static or DHCP client

COMMUNICATION PROTOCOLS:
Modbus RTU
Modbus TCP
BACnet/IP (EB model only)
TCP/IP, HTTP
WOW XML Push

USER INTERFACES:
Browser-based access via IP (Requires Adobe® Flash® plugin)
Setup: Software (Windows XP or later) or local display
Access Restriction: Password protected
Display: 1/4 VGA 3.5" Color Touchscreen

WEB-SERVER TREND LOGS:
Parameters: Up to 200 (user selectable)
Log Interval: 1 - 60 min
Typical Log Period: 40 days for 6 parameters logged every 15 min
Unlimited remote logging when connected to Powersmiths WOW™

PRODUCT CERTIFICATIONS:
Assembly to USTC/QPS inspected to UL508
Meter to UL/cUL Listed to Category FTRZ (UL916)
Certified compatibility for data push to Powersmiths WOW™

WARRANTY:
5 year limited

MANUFACTURER'S STANDARDS COMPLIANCE:
ISO 9001, Quality Management System
ISO 14001, Environmental Management System
ISO 17025, CSA Certified Efficiency Test Lab

POWERSMITHS

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