

Cyberhawk Express™

INNOVATIVE SUBMETERING

Cyberhawk Express is a revenue accurate meter with extensive logging capabilities that brings simplicity to data collection. Cost effectiveness, rapid deployment and ease of use drive the configurations and capabilities of this unique meter. A variety of models are available to meet the needs of the application.

Cyberhawk Express shines in its ability to accurately and cost effectively extract measurements for specific equipment or groups of related circuits (e.g. lighting) from mixed load panels, which are commonly found in buildings today, by providing errorless summation of multiple CTs within a single meter.

To further simplify submetering and reduce overall cost, Cyberhawk Express can measure circuits of up to 120A directly without requiring external CTs.

INCREASED ACCURACY & SUPERIOR LOGGING FEATURES

- Meets accuracy requirements of ANSI C12.20 Class 0.5
- Built-in CT error correction for characterized CTs (also offered by Powersmiths)
- Analog and digital inputs to centralize data collection for electricity, water, gas, temperature and other devices with pulse and analog outputs
- Embedded time-stamped logging for up to decades (log interval and parameter dependent)
- Bi-directional meter tracks both consumption and production
- Store peak monthly demands with user-selectable date range for a full year without needing to manually reset registers
- Better understand performance with minimum, maximum and average data logs
- Time-stamped event logs with actionable alarms (user settable)
- High precision real-time clock with supercap back-up (no battery replacement required)



Models EX2 and EX3 with display shown

COST EFFECTIVE CONNECTIVITY & CONVENIENCE

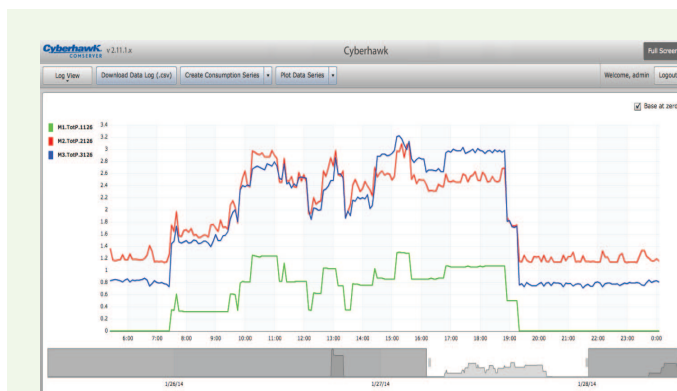
- Daisy chain up to 12 meters to streamline data access and reduce networking costs and failure points
- Communication options include Modbus RTU, Modbus TCP and BACnet/IP
- USB port provides unpowered offline setup, easy access for commissioning and simple data retrieval
- RS-485 port isolation enhances operational reliability
- Supports all passive CT types (5A, 333mV and Rogowski)
- Integrated CTs up to 120A can eliminate need and cost of external CTs
- Errorless summation of groups of CTs
- Up to 7 watt power available for 24V auxillary devices
- User programmable tags for meter and I/O identification
- Pre-packaged and ready for easy installation

EASE OF ACCESS TO DATA

Live data can be viewed and logged data downloaded from Cyberhawk Express locally via a computer directly connected to the meter's USB port. The web-server option enables browser-based remote access to live data, event logs and data trends, communication with third party systems, and certified data push to Powersmiths WOW™ Sustainability Management Platform to support education, analytics and GHG reporting.

KEY FEATURES

- Many configurations for low cost rapid deployment
- Direct measurement of up to 120A loads without external CTs
- Errorless summation of multiple CTs enables accurate and cost effective load aggregation
- Daisy chain up to 12 meters for central access and reduced networking costs and failure points
- Web-server option enables browser-based remote access to live data and trend logs, network connection to building management systems, and data push to Powersmiths WOW™
- Analog and digital inputs for water, gas, temperature and more
- Packaged and UL Listed for safe, approved installation



Graphical data trends viewed via a standard web browser

TECHNICAL INFORMATION

Cyberhawk-EX0: An open frame transducer model UL Listed as an Energy Measurement Device under the PAZX category for OEM integration into industrial control equipment; Refer to separate cut sheet for more information.

Cyberhawk-EX1: An open frame model UL Listed under the FTRZ category for direct conduit connection to the electrical system. Note: No conduit enclosed control wiring.

Cyberhawk-EX2: A fully enclosed compact package for Type 1 Environments UL Listed under FTRZ category for direct integration into the electrical system. This model may be equipped with an optional Ethernet port supporting Modbus TCP and BACnet IP.

Cyberhawk-EX3: Similar to the EX2 but packaged for a Type 4 environment UL Listed under FTRZ category for direct integration into the electrical system. This model may be equipped with a display. When display is fitted, unit's environmental rating is for indoor or protected outdoor.

FUNCTIONALITY: B: Standard functionality.

VOLTAGES:

Available model specific voltages:

240: 120V to 240V nominal range applicable to 120V single phase, 120/240V split phase and 120/208V 3-phase systems. Absolute voltage limits are 85V to 265V.

600W: 120/208 through to 347/600V 3-phase and 120/240V split-phase systems applicable to all L-L and L-N connections. Absolute voltage limits are 100V to 690V.

CT INPUTS:

Available model specific support for passive CT types:

3V: 333mV voltage output CT sensors and Rogowski coils.

10A: Used for traditional 5 Amp current output CTs or the summation of the outputs of up to two 5A CTs for errorless summation from two circuits sharing a power source.

40A: Applicable for direct measurement of load currents up to 40A with a maximum cable size of #2 AWG, or the summation of the outputs of up to eight traditional 5A output CTs for errorless summation of circuits sharing a power source.

120A: Applicable for direct measurement of load currents up to 120A with a maximum cable size of #2 AWG, or the summation of the outputs of up to twelve traditional 5A output CTs for errorless summation of circuits sharing a power source.

ACCESSORIES:

External CTs: 5A output, 333mV output, Rogowski; Refer to CT selection guide.

Note: Current sensing CTs are required for each phase if circuits are not measured directly through integrated CTs.

CTs are selected based on the current rating and physical conductor dimensions. The accuracy of the CT has more of an impact on overall measurement accuracy than the meter itself, therefore, CTs must be properly selected for each application.

CT error characterization is available for CTs purchased through Powersmiths.

Cyberhawk Express and Cyberhawk 300™ are unique in their capability to incorporate this error data, enabling superior measurement accuracy.

Voltage Interface: 15A fused disconnect.

CT Interface: 5A CT shunting blocks (not required for 333mV and Rogowski types)

Ambient Temperature Sensor: -40°C to 105°C

Coil Temperature Sensor: -40°C to 220°C

Liquid Temperature Sensor: -40°C to 105°C

USB Cable: Type USB-A to USB-B Micro or Panel Mount USB-B Micro to USB-B.

Panel Mount External Ethernet Jack: EX2 model only

SYSTEM RATINGS:

240 Model: 120/240V; 3-phase 120/208V

600W Model: 120/208V up to 347/600V

Frequency: 50/60Hz

Power Supply: 1 or 3-Ph. (any available Ph.)

Power Burden: 1.5W – 10W accessories dependent

METER PORT CONFIGURATIONS:

1-phase Single/Split (2/3 wire, 1/2-CT)

3-phase D (3-wire, 3-CT)

3-phase Y (4-wire, 3-CT)

CT INPUTS:

3V Model: Full scale at CT rated current

10A Model: 5A nom., 10A max., Crest Factor < 3, Burden < 1VA

40A Model: 20A nom., 40A max., Crest Factor < 3

120A Model: 60A nom., 120A max., Crest Factor < 3

MEASUREMENTS & ACCURACIES:

Voltage/Current: V_{L-L} , V_{L-N} , I_L , Hz. (0.5%)

Power: P, S, Q, PF (Phase & Total) (0.5%)

Demand: I, P, S, Q (Phase & Total) (0.5%), Sliding/Block

Energy Import/Export: E_{P} , E_{S} , E_{Q} (Phase & Total), (Class 0.5)

Peak Demand: P, S, Q (Total, for 12 monthly cycles with selectable date range)

P: Active; S: Apparent; Q: Reactive; PF: Power Factor

PROTECTION & CONNECTIONS:

Internal impedance protected (no fuses)

Voltage: #14 AWG wire nut

Current: 3V Model: Screw Terminal (pluggable)

10A Model: Wire nut

40A/120A Models: 1/2" window pass through

PHYSICAL:

EX1: 7.4"H x 8"W x 4"D; 4lbs (Type 1 environment)

EX2: 7.9"H x 11.5"W x 5"D; 7lbs (Type 1 environment)

EX3: 6.2"H x 12.6"W x 8.7"D; 16lbs (Type 4 environment)

Note: Dimensions do not include mounting brackets

Temperature: 0°C to +50°C specification

-25°C to +60°C operational

Humidity: 80% ≤ 31 °C

MEMORY TYPES:

Energy: Non-Volatile Ferro-electric

User Settings: Non-Volatile Ferro-electric

Event Logs: Non-Volatile Ferro-electric

Data Logs: Flash (BMB)

Firmware: Flash (field reflashable)

ANALOG INPUTS:

Input 1: Temperature (10k Thermistor)

Inputs 2&3: Each configurable for 0-5V, 4-20mA (with external resistor) or temperature (10k Thermistor)

Scaling Factors: Gain/Offset

User Tags: 16 alphanumeric characters per input

DIGITAL INPUTS:

Inputs: 3 x 5V self-biased, 5mA max.

WET Input: 24VDC Max

User Tags: 16 alphanumeric characters per input

DIGITAL OUTPUTS:

Outputs: 3 x open collector, 30V max. at 100mA

Functions: Energy pulse output, alarms

User Tags: 16 alphanumeric characters per input

EVENTS & ALARMS:

Parameters: 8,

Set Points: > 48

Settings: <, >, delays, action

GENERAL:

Clock: +/- 1 sec per day, 21 day typical holdup

Output Power: 24VDC (+/- 1V), 7W (300mA)

System User Tags: 6 x 16 alphanumeric characters

COMMUNICATION INTERFACES:

USB Type B (EX1 model uses Micro-B)

RS-485: 2 x half-duplex, 240VAC isolated, 9.6 – 115.2 kb

Ethernet: 10/100 BaseT (EM and EB models)

IP Addressing: Static or DHCP client (EM and EB models)

COMMUNICATION PROTOCOLS:

Modbus RTU

Modbus TCP (EM and EB models)

BACnet/IP (EB model)

TCP/IP, HTTP (EM and EB models)

USER INTERFACES:

Browser based access via IP (Requires Adobe® Flash® plugin, EM and EB models)

Setup: Software (Windows XP or later or Mac Intel based OS)

Access Restriction: 2-level password

Display: 128 x 64 pixel touchscreens (EX3 model option)

WEB-SERVER TREND LOGS: (EM and EB models)

Parameters: Up to 200

Log Intervals: 1 – 60 min

Typical Log Period: 3 weeks for 10 para. logged at 15 min

Unlimited remote logging available when connected to Powersmiths WOW™

INTEGRATED DATA LOGS: (all models, no graphical UI)

Parameters: 2 to 62 with time/date stamp

Log Intervals: 1 – 60 min

Data Formats: Inst. avg., max., min.

Typical Log Period: 22 days for 62 para. logged at 1 min

59 yrs. for 2 para. logged at 1 hr

PRODUCT CERTIFICATIONS:

UL/cUL Listed to Category FTRZ (UL916)

EMI Class A: Part 15 FCC (USA) & ICES-003 (Canada)

Certified compatible 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

ORDERING INFORMATION

Cyberhawk - EX3 - B - 600W - 10A - EM - D

Package Type	Functions	Voltage	Current Inputs	Connectivity	Option																																												
EX0: Transducer EX1: Open Frame EX2: Type 1 EX3: Type 4* *When equipped with display option, unit's environmental rating is for indoor or protected outdoor.	B: Standard Functionality	240 600W	3V: 333mV terminal 10A* 40A* 120A* *Integrated CTs enable load conductors to pass directly through, or interface with multiple external 5A output CTs.	<table border="1"> <thead> <tr> <th></th> <th>RS</th> <th>EM</th> <th>EB</th> </tr> </thead> <tbody> <tr> <td>RS-485</td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> <tr> <td>Modbus RTU</td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> <tr> <td>Intg Data Logs</td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> <tr> <td>Web-Server</td> <td></td> <td>✓</td> <td>✓</td> </tr> <tr> <td>Modbus TCP</td> <td></td> <td>✓</td> <td>✓</td> </tr> <tr> <td>Ethernet</td> <td></td> <td>✓</td> <td>✓</td> </tr> <tr> <td>Web Accessible</td> <td></td> <td>✓</td> <td>✓</td> </tr> <tr> <td>Trend Logs</td> <td></td> <td>✓</td> <td>✓</td> </tr> <tr> <td>WOW Push</td> <td></td> <td>✓</td> <td>✓</td> </tr> <tr> <td>BACnet/IP</td> <td></td> <td></td> <td>✓</td> </tr> </tbody> </table>		RS	EM	EB	RS-485	✓	✓	✓	Modbus RTU	✓	✓	✓	Intg Data Logs	✓	✓	✓	Web-Server		✓	✓	Modbus TCP		✓	✓	Ethernet		✓	✓	Web Accessible		✓	✓	Trend Logs		✓	✓	WOW Push		✓	✓	BACnet/IP			✓	D: Display* *EX3 model only
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