

# Verdigris for Commercial Buildings

1. Our sensors monitor any electricity main, distribution panel feed, or circuit breaker in any building.
2. Real-time data transmits via 4G/LTE, WiFi or Ethernet to the cloud (with optional on-premises server or BMS integration).
3. Support for external power adaptor realtime clock w/ battery backup.
4. Energy usage/forecasting, demand management, power factor, power quality (total harmonic distortion), phase unbalance rate.

## KEY FEATURES

EV2 improvements over previous generation equipment include:



Native Ethernet support



Wider operating temperature range



Native 480V Delta support commonly seen in older, rural and industrial installations

## Analog Inputs:

- Up to 42 current measurement channels
- 4 voltage measurement channels (100-480 Vac)

## Breaker Panel Types Served

EV2 advanced energy meters work with a range of electricity main switchboards, sub-panels, MCCs, and breaker boxes. The Energy Data Gateway mounts external to the monitored breaker panel, or on a nearby wall or junction box.

- Panel and voltage types (up to 42 breakers/panel):
  - Single-phase 100-277 V
  - Split-phase 100-277 V
  - Three-phase 120/208 V
  - Three-phase 240/416 V wye
  - Three-phase 277/480 V wye
  - Three-phase 120/240 V delta
  - Three-phase 480 V delta
  - Three-phase 600V wye
  - Three-phase 600 V delta\*

\* 600V Delta metering requires an optional external power adapter

- Frequency: 50-60 Hz
- Current measurement range (Amperage): 0.25 A-15,000 A

## Harmonic Parameters:

Synchronization frequency range: 50 Hz-60 Hz

## Data Available to You

Data is transmitted securely via 4G LTE, WiFi, or Ethernet, stored on the cloud, and available 24/7 on any desktop web browser.

Data also available through CSV export, API, and integration via BACnet IP or Modbus TCP.

- Data On-Premise available for Enterprise purchase plans. Speak with a solutions architect.
- Display Refresh Rate: minutely (online dashboard), once per second (interactive setup tool)
- Frequency Characteristics: AC up to 8 kHz
- Precision: 10 mW
- Data Access via API: unlimited
- Historical Data Stored Forever
- Historical data store and availability on the web:
  - 1-minutely
  - 15-minutely
  - Hourly
  - Daily

## Data Available Through API:

Energy	Current Waveform Peak Value
Voltage	Voltage Waveform Peak Value
Current	Total Harmonic Distortion
Active Power	Total Harmonic Current Distortion
Apparent Power	Voltage Fundamental Waveform
Apparent Power Factor	Current Fundamental Waveform
Time Average Current	Active Fundamental Waveform
Time Average Active Power	Harmonic Voltage Content %
Local Temperature	Harmonic Current Content %
Reactive Power	

\*Information on additional recorded data available. See product documentation.

## Energy Data Gateway

- Physical Size and Weight: 11 x 5 x 2.5 inch [280 x 127 x 64 mm] , 2 kg
- Frequency Range: 50-60 Hz
- Voltage Range: 100-480 VAC CAT III\*

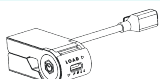



\* CAT III-rated instruments are primarily used on fixed installations, distribution boards, and circuit breakers and can withstand the specified voltage range.



- Current Rating: 300 mA
- BACnet / Modbus supported
- Cable Max Voltage: 600 V
- Temperature Range: -40 °F-145 °F [-40 °C-63 °C]
- ADC Accuracy: 16-bit
- Power Supply: 100-480 Vac 50/60 Hz, 20 W
- Degree of Protection: IP30

## Current Transformers (CTs)

Verdigris offers two types of CTs: (1) Verdigris Smart CTs for sensor individual circuit breakers (< 60 A) in tight spaces and (2) High current hinged CTs or Rogowski Coils for larger amperage circuits. High Current CTs connect to the data chain using the Verdigris High Current CT Interface Module adapter.

	Verdigris Smart CT	Hinged CT	Coil CT	Verdigris High Current CT Interface Module
				
Max Circuit Ampacity	60 A per circuit	250A	Up to 15,000A per circuit (custom sizes available)	
Minimum Load (Amperage or %)	0.25 A	0.5% of CT load	5 A	
Sensor Accuracy	±2%	0.5%	0.5%	
Physical Dimensions	2.2 x 1 x 1 inch [56 x 25 x 25 mm]	Varies by amperage	Coil diameter is 0.61 inch [15.5 mm]	2.4 x 2.4 x 1 inch [60 x 60 x 25 mm]
CT Accuracy Range (% of rated current)	1%-100%	10%-120%	0%-100%	
Temperature	-40 °F-145 °F [-40 °C-63 °C]	5 °F-140 °F [-15 °C-60 °C]	-4 °F-158 °F [-20 °C-70 °C]	
Max Conductor Size	4 AWG [21.1mm <sup>2</sup> ]	1 inch window for up to 900 kcmil or MCM [456 mm <sup>2</sup> ]	4 inch or 7 inch window	2.4 x 2.4 x 1 inch [60 x 60 x 25 mm]
Max Wire Size	Including insulator 2.3 inch [58.6mm]	Varies by amperage	23.62 inch [600mm]	

## Data Transmission

- Ethernet: 100/1000 Mbps (RJ-45)
- 4G/LTE Cat 4 and LTE Cat-M1/NB-IoT
- Bands 3, 4, 8 and 13\*
- WiFi: 802.11 b/g/n
- Local Networks: BACnet/IP, Modbus/TCP

\* US and China, for more Band support inquire with your account representative.

## Wireless

- EN 61326-1:2013
- EN 55011:2009+A1:2010
- CISPR 11:2009+A1:2010
- FCC Part 15 Subpart B:2015
- ICES-003:2014

## Warranty

2 year standard, extended options available

## Safety Certificates

- UL 61010
- IEC 61010-1:2010
- CAN/CSA-C22.2 NO. 61010-1-12
- CAN/CSA-C22.2 NO. 61010-2-030-12

CE FCC RoHS BACL

## Environmental

- RoHS
- WEEE

## Accessories

- Instruction manual
- Data cables
- Mounting assembly
- Built-in wiring compartment (J-Box)