

California Type Evaluation Program
Certificate of Approval
Weighing and Measuring Devices

For:

Watt-hour Meter
Electronic
Model: 6WXX-YP-ZZ
Generic Name: PowerHawk 6300 Series

Voltage Rating: 120/208/240/277 VAC
Class (CL): 200 (200 Amps Max.)
Test Amps (TA): 30 Amps
Watt-hour Test Constant (Kh): 1 Wh or 0.001 kWh

Submitted By:

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Standard Features and Options

Standard Features:

- Internal scrolling indicator (register): Liquid Crystal Display (LCD), 1,000 kWh register, displays meter serial number.
- External solid core Current Transformers (CTs). See the "Identification" section.
- Triacta Model 9320 External Pulse Box. This must be supplied to the local weights and measures test facility and is required to perform accuracy tests on the meter specific to the California Code of Regulations test requirements.

Note: A meter identification key must be posted by the meter's indicator to identify each meter to the tenant it serves.

This device was evaluated under the California Type Evaluation Program (CTEP) and was found to comply with the applicable requirements of California Code of Regulations for "Weighing and Measuring Devices." Evaluation results and device characteristics necessary for inspection and use in commerce are on the following pages.



Kristin Macey, Director
Effective Date: June 21, 2019

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Watt-hour Meter / 6WXX-YP-ZZ (Generic Name: PowerHawk 6300 Series)

Application: For use as a watt-hour metering system in legal submetered electric service applications.

Identification: The main meter identification (ID) information is on the face of the meter case (Figure 1). The external CT's identification is on each CT (Figure 2). The serial number is also accessible from the internal scrolling LCD indicator. To access the serial number, press and hold the "Select" button for approximately 3 seconds until the "Diagnostic" mode is displayed. Next, press the "Select" button again until the "Local IP Address" is displayed. Lastly, press the right arrow button until the "Serial Number" is displayed (Figure 3). The serial number is on the main label and on the printed circuit board (PCB).



Figure 1. Photo of the meter case with meter ID display (in red box).



Figure 2. Triacta CT Model 908-314-01



Figure 3. Photo of a meter's serial number ID.

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TABLE 1. METER MODEL NO. DESIGNATION <i>(e.g., Model Number: 6WXX-YP-ZZ; Model 6320-3P-10 is a 6320-base meter with 3 CTs, which equals a total of 20 meters.)</i>			
63XX Base Unit	Y = Number of elements (CTs)	P = Phase	ZZ
6320	1 = 1 CT w/ 20 single-phase meters 2 = 2 CTs w/ 20 two-phase meters 3 = 3 CTs w/ 10 three-phase meters	Meter Phase	10 = 10 meters 20 = 20 meters
6312	1 = 1 CT w/ 24 single-phase meters 2 = 2 CTs w/ 12 two-phase meters 3 = 3 CTs w/ 8 three-phase meters		24 = 24 meters 12 = 12 meters 8 = 08 meters
6312 REV D	1 = 1 CT w/ 24 single-phase meters 2 = 2 CTs w/ 12 two-phase meters 3 = 3 CTs w/ 8 three-phase meters		24 = 24 meters 12 = 12 meters 8 = 08 meters
6303	1 = 1 CT w/ 6 single-phase meters 2 = 2 CTs w/ 3 two-phase meters 3 = 3 CTs w/ 2 three-phase meters		06 = 6 meters 02 = 3 meters 03 = 2 meters
6103	1 = 1 CT w/ 6 single-phase meters 2 = 2 CTs w/ 3 two-phase meters 3 = 3 CTs w/ 2 three-phase meters		06 = 6 meters 02 = 3 meters 03 = 2 meters
6109	1 = 1 CT w/ 9 single-phase meters 2 = 2 CTs w/ 3 two-phase meters 3 = 3 CTs w/ 2 three-phase meters		1 = 09 meters 2 = 04 meters 3 = 03 meters
6118	1 = 1 CT w/ 18 single-phase meters 2 = 2 CTs w/ 9 two-phase meters 3 = 3 CTs w/ 5 three-phase meters		01 = 18 meters 09 = 9 meters 03 = 6 meters
6112	1 = 1 CT w/ 24 single-phase meters 2 = 2 CTs w/ 12 two-phase meters 3 = 3 CTs w/ 8 three-phase meters		24 = 24 meters 02 = 12 meters 03 = 08 meters

Note: Model 63XX meters use 200 Amps CTs (CT ratio of 200A:0.08A or 2500A:1A). Model 61XX meters use either 100 Amps CTs or 200 Amps CTs (CT ratio of 100A:0.1A or 200A:0.1A).

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TABLE 2. LEVITON CURRENT TRANSFORMER (CT) MODEL NO. DESIGNATION (Model No. CDW0X-Y1Z e.g., CDE01L11)					
C	D	W = CT Size and Vendor Code	0X = Amps	Y = Color	1Z
Current Transformer	D = Solid Core CT	A = Leviton WEGO (Larger CT) E = WEGO (Smaller CT)	01 = 100 AMPS	K = Black L = Blue R = Red	1Z = 11 or 12 (Non-Metrological)
CERTIFIED EXTERNAL CT MODELS					
Make			Models		
Filtron and API			900-313-01, 7896, 908-314-01, 9548NL		
Teahwah Trans			TZ106, 900-313-01, 908-314-01		
Leviton			CDW0X-Y1Z		

Sealing: The meters have two wire security seal provisions to prevent undetected access to the “terminal blocks” and “adjustment mechanism.” The “terminal blocks” sealing provision is a Category 1 method of sealing, and the “adjustment mechanism” sealing provision is a Category 2 method of sealing.

The Category 1 sealing provision prevents undetected access to the system’s main case cover where the “wire terminal blocks and CT cable connections” are located.

The Category 2 “adjustment mechanism” sealing provision prevents undetected access to the calibration DIP (Dual In-Line Package) switch located on the PCB beneath the PCB cover by threading a wire security seal through the PCB cover. **Figure 4** is a photograph of the PCB cover removed, and the red arrow points to the calibration DIP switch that must be placed in the “unlocked” position as displayed on the register. When the calibration DIP switch is in the “unlocked” position, metrological related settings can be changed via a computer and an Ethernet connection. **Figure 5** is a photograph showing the wire security sealing provision; the red arrow indicates where the wire security seal attaches.

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Figure 4. The red arrow points to the calibration DIP switch located on the main PCB. There are two switches in this assembly. When the meter is in service and sealed, both switches must be set to “off.” If the switches are set to “on”, then it is not sealed.



Figure 5. The printed circuit board (PCB) cover (meter seal) utilizes a physical wire security seal sealing provision. The red arrow points to the location of where the wire security seal needs to be.

Note: Do not seal the wire security provision if the display shows “unlocked.”

The internal scrolling LCD indicator will display “**unlocked**” in this state (**Figure 6**). When the calibration DIP switch is in the “**off**” or “**locked-out**” position, the meter is in the normal usage mode. This prevents undetected access to the adjustment of the calibration and configuration.

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Figure 6. The “UNLOCKED” message should be visible on the LCD display and the unit cannot be used for commercial transactions.

Operation: The device has an internal scrolling register, which displays each meter indication for approximately 5 seconds. By pressing the left or right arrows, the device will scroll the indicator to a particular meter indication (refer to note on page 1). An external pulse box must be utilized for testing and be provided by the manufacturer to the officials responsible for verifying meter performance. The pulse box must be attached to the meter with a ribbon cable (**Figure 7**). The ribbon cable from the pulse box connects to the JH1 connection on the meter’s PCB. The pulse box has 20 red pulsing LEDs that flash on and off when a load is applied to a specific meter or CT. The red LEDs illuminate, then flash off momentarily, indicating 0.001 kWh or 1 watt-hour per flash. The CTs line and load are direction sensitive. In addition, the arrow on the CT points toward the load. The external pulse box must be disconnected when testing is completed.

Note: Before the device is placed into service, arrangements must be made with the local weights and measures office to demonstrate accuracy.

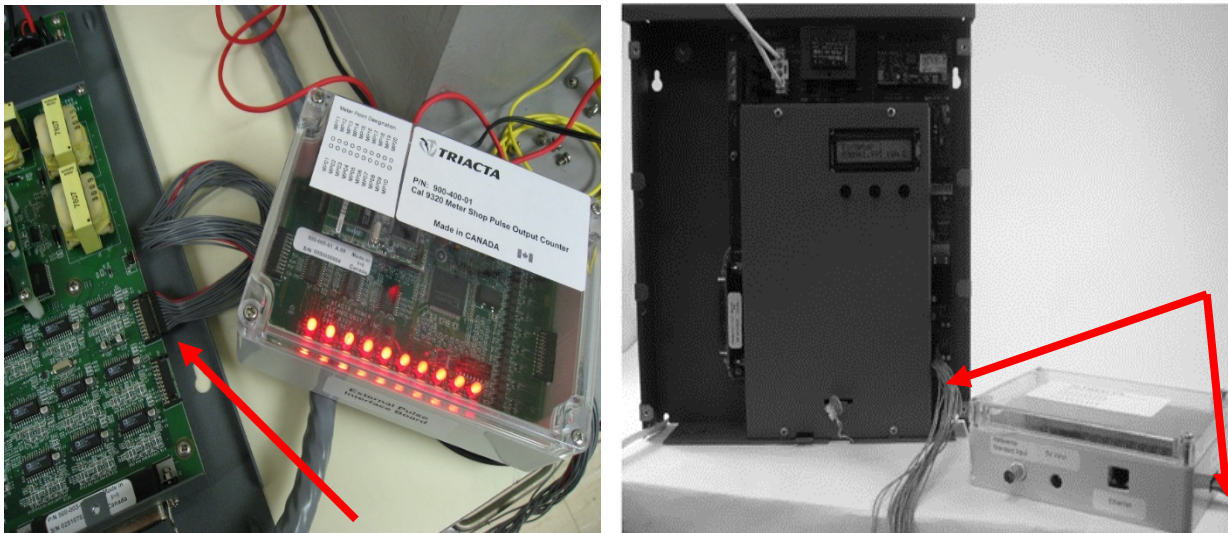


Figure 7. Photographs of the Triacta Model 9320 External Pulse Box, the meter case with the PCB shown, and the ribbon cable. The red arrows point to the ribbon cable that connects the pulse box to the meter case (more specifically, the PCB underneath the meter cover). This test apparatus is used in the verification of the Triacta PowerHawk™ product family.

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Test Conditions: This Certificate of Approval (COA) supersedes 5563(c)-15 and is issued to add CT manufacturer name to include both the FILTRAN and API models as per Schneider Electric 5721a-19, as well as Leviton Model CDW0X-Y1Z CTs from the Leviton COA 5780-16, and to add meter models from LEVITON branded meter under COA 5780-16 models S8000 Series. Documentation from both Leviton and Schneider was acquired to allow test conditions from those respective COAs.

Certificate of Approval Number 5563(c)-15: This certificate supersedes COA Number 5563(b)-10 and is issued to add 277 VAC voltage input capability, a de-populated element variant 6303, and to correct an error on page 1 changing the Model 6312 Base Unit maximum from 12 to 24. Testing was witnessed by the DMS evaluator due to the voltage being 277 VAC (greater than 240 VAC)

Certificate of Approval Number 5563(b)-10: This certificate superseded COA Number 5563(a)-10 and was issued to correct an error on page one by changing the Model 6312 Base Unit maximum from 12 to 24 and was issued without further testing.

Certificate of Approval Number 5563(a)-10: This certificate superseded COA Number 5563-08. A meter model 6312 3P-08 with external current transformers and an external pulse box were submitted for evaluation. Three meters were randomly selected for initial testing and installed on a test bench with various loads. After a permanence period of approximately 29 days, the meters were retested. The meters were subjected to accuracy tests from 3 amps to 30 amps at both unity and 0.5 power factors. Starting load and creep tests were also conducted. Results of the evaluation indicate the devices comply with applicable requirements.

Certificate of Approval Number 5563-08: Meter model 6320-3P-10 with external current transformers and an external pulse box were submitted for evaluation. Three meters were randomly selected for initial testing then installed on a test bench with various loads. After a permanence period of approximately 29 days, the meters were retested. The meters were subjected to accuracy tests from 3 amps to 30 amps at both unity and 0.5 power factors. Starting load and creep tests were also conducted. Results of the evaluation indicate the devices comply with applicable requirements

Evaluated By: J. Roach (CA) J. Roach (CA) 5563-08, 5563(c)-15, 5563(d)-19; Matt Stevens (CA) 5563(a)-10, 5563(b)-10

Type Evaluation Criteria Used: *California Code of Regulations, Title 4, Division 9, Chapter 1, Article 1. General Code 1.10. and Article 2.2 Watt-hour Meter, 2019 Edition*

Conclusion: The results of the evaluation and information provided by the manufacturer indicate the device complies with applicable requirements.