California Type Evaluation Program
Certificate of Approval
Weighing and Measuring Devices

For:
Watthour Meter
Solid State Electronic
Model: PSxxHD-X-Y-Z
Current Transformer (CT) Models: CT-RGT-xx-yyyy, RGTM-xx-yyy, CT-SRL-zzz

Software Version Number: 2.71

Submitted By:
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Standard Features and Options

Standard Features:

- External current transformers (CTs)
- kWh unit of measure
- Voltage Rating: 120VAC,208VAC,240VAC,277VAC,480VAC
- Class (CL): 100, 200, and 400
- Test Amps (TA): 30A
- Watthour Test Constant (Kt): 5 (watthour per output test indication)
- Supports both Modbus and BACnet communication protocols
- USB, RS-485, and Ethernet input ports for configuration
- Revenue grade ANSI C12.20-2010 Class 0.2
- Real-time meter configuration and data display

Options:

- Current Transformers (CT) are configurable to 1, 2, or 3 elements
- Panel/Mount enclosure
- 4-Line display, tri-color backlight (PS3HD 2-line display)

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

Kristin Macey, Director
Effective Date: March 23, 2023

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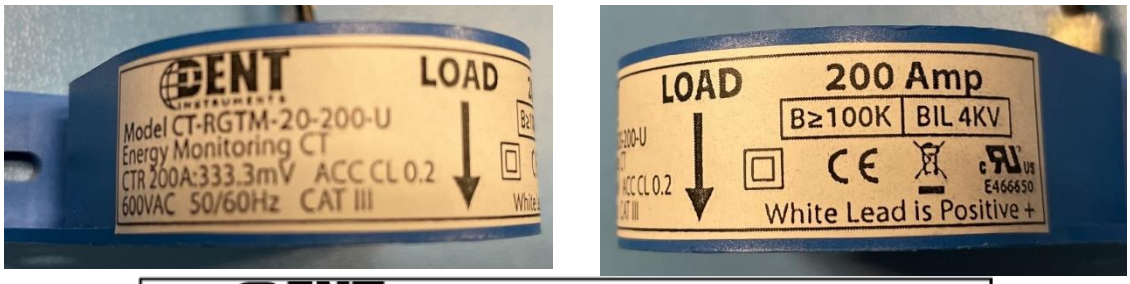
Application: For use as a multi-channel watthour metering system in legal sub-metered electric service applications.

Identification: The required watthour meter identification (ID) information is located on the side of the meter housing ***(Figure 1)***. The current transformer (CT) identification information is on the side of the CTs ***(Figure 2)***. To view the software ID, from the main menu, press the down arrow button "▼" and scroll to "About Meter". Press the "►" button to view the screen with the software ID ***(Figure 3)***.

Figure 1. Example of Meter ID label



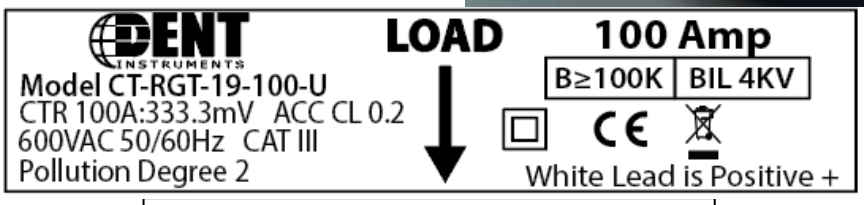


Figure 2. Examples of CT ID labels

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Figure 3. Software ID display

CT Models Designation (CT-RGT-xx-yyyy, RGTM-xx-yyy, CT-SRL-zzz)			
CT = Current Transformer	RGT = Revenue Grade Toroidal	xx = 19=0.75" window, 25=1" window, 32=1 ¼" window	yyyy=0100=100A,0200=200A, 0400=400A
	RGTM = Revenue Grade Toroidal Mount	xx = 15=0.6" window, 20=0.8" window, 35=1.4" window	yyy = 100=100A,200=200A, 400=400A
	SRL = Split Revenue Large	zzz = 100=100A,200=200A, 400=400A	

Meter Model Designation (PSxxHD-X-Y-Z)					
Series PS = PowerScout	xx = Number of current sensor inputs	HD =High Density	X = C, P, R(PS3HD Only) Represents enclosure type	Y = LCD screen	Z = N or V
	3, 12, 24, 48		C = Case	D = LCD screen present	N = No internal communication radio
			P = Plate		V = Virtual element channel configuration
			R = Rail Mount		

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Sealing: The meter has a Category 1 adhesive tamper-evident security seal on the outer box ***(Figure 4)*** to prevent undetected access to the "terminal blocks" and "adjustment mechanism." The RS-485 and Ethernet port enabling remote configuration is a Category 2 sealing provision.

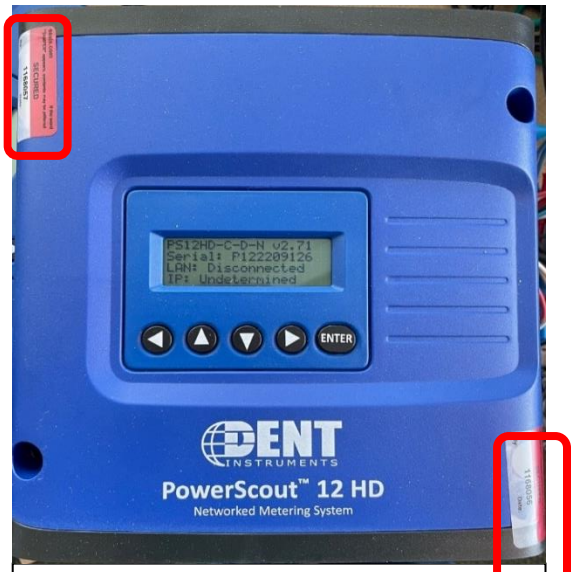

Figure 4. Example of adhesive tamper-evident security seal

The PSxxHD Printed Circuit Board (PCB) contains the RS-485 port and sealing switch that is accessible when the enclosure top is removed **(*Figure 5a).*** When the switch is in the "Seal" position, the PSxxHD's metrology settings cannot be changed via the USB, Serial RS-485, or Ethernet ports. There is an indication on the LCD main menu that shows the PSxxHD is in the sealed condition. When the device is in remote configuration mode, the screen will display "Seal:OFF." When the device is not in remote configuration mode, the screen will display "Seal:ON" ***(Figure 5b)***.

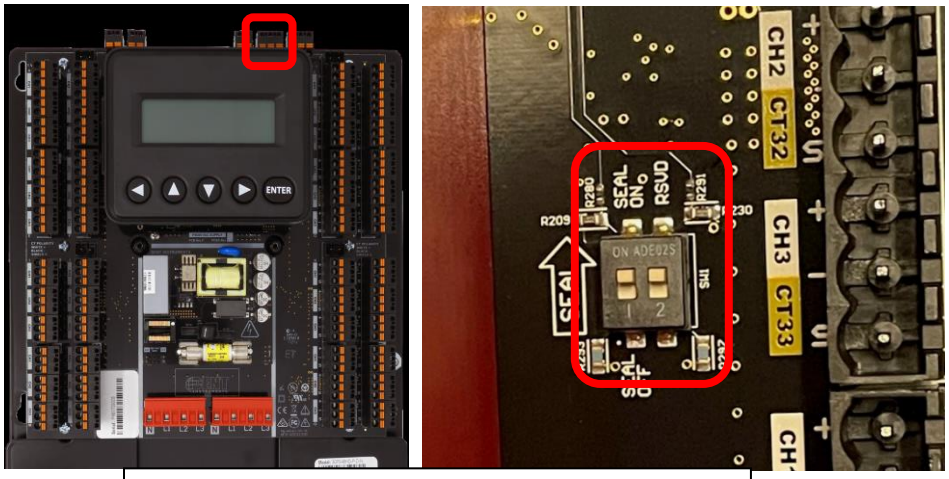

Figure 5a. Location of the RS-485 port and the sealing switch in the on position

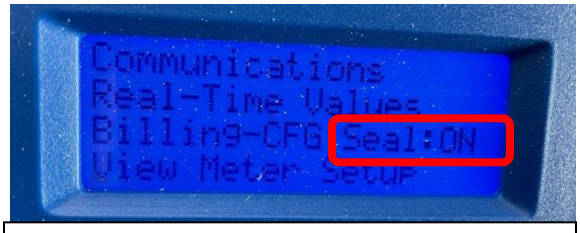

Figure 5b. Seal "ON" indication on the display screen

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Operation: The PSxxHD energy readings are viewed under the “Billing-CFG Seal:” menu ***(Figure 6)***. The PS12HD, PS24HD, and PS48HD contain multiple meters that are accessed by clicking on the right arrow “►” button from the “Billing-CFG Seal:” menu ***(Figure 7)***. The meters are labeled “Meter A”, “Meter B”, etc., corresponding to the current sensor inputs on the PCB. Under the meter indicator, each meter display also contains a description of the metered load such as the apartment number, kWh, and kW of the load. The display contains a pulsing cursor alternating between “_” and “▮“ when the amount of Kt energy has been measured ***(Figure 8)***. Pressing the down arrow “▼” button will enter another screen with additional information containing the number of elements (active current sensor channels), the TA, and the CL ***(Figure 9)***.

Figure 6. Main menu, to enter “Billing-CFG Seal” screen, showing seal is “ON”

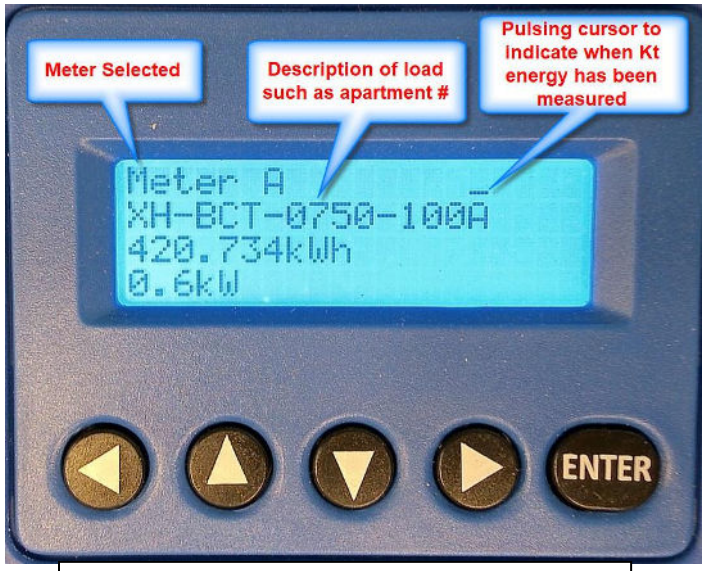

Figure 7. Meter A screen

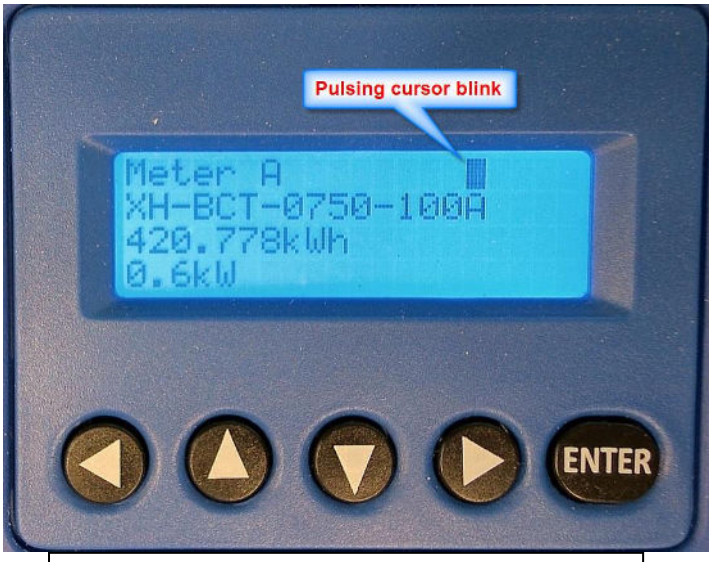

Figure 8. Cursor pulsing on Kt energy

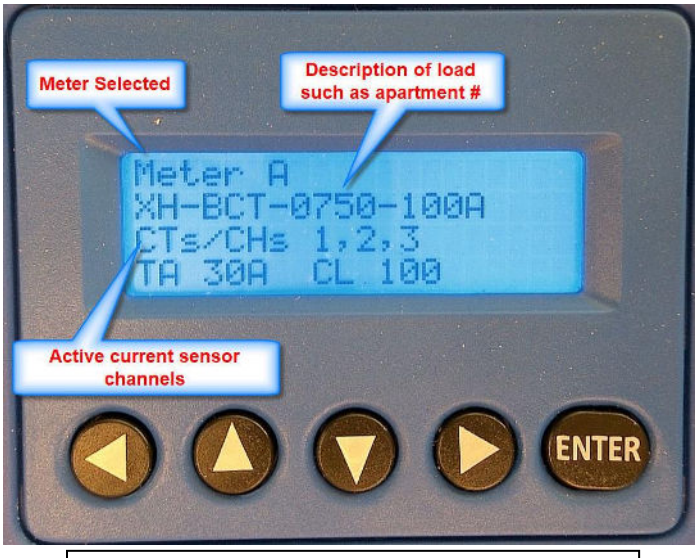

Figure 9. Meter A 2nd screen

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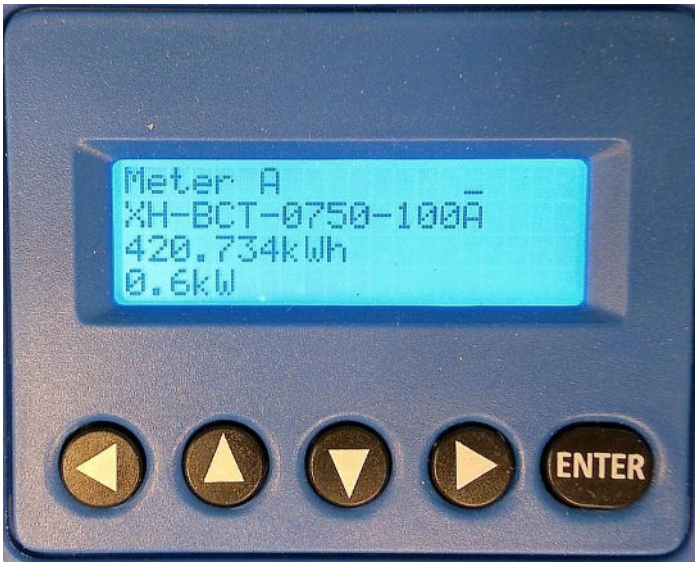
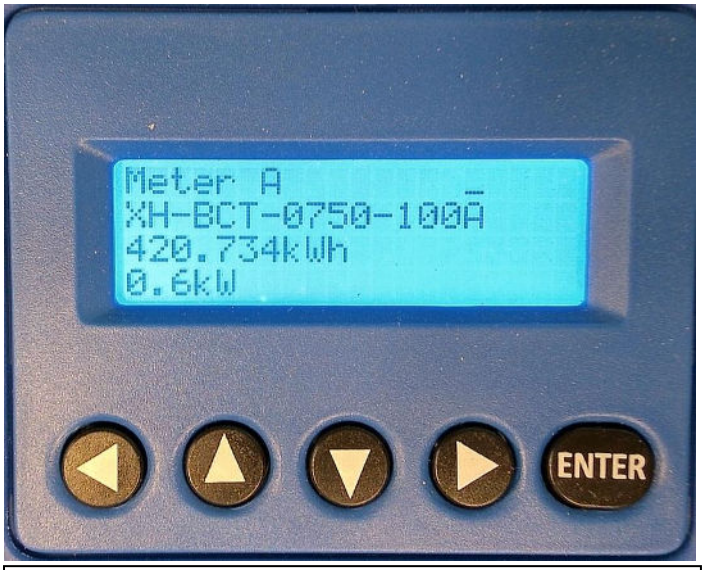
Testing Procedure:

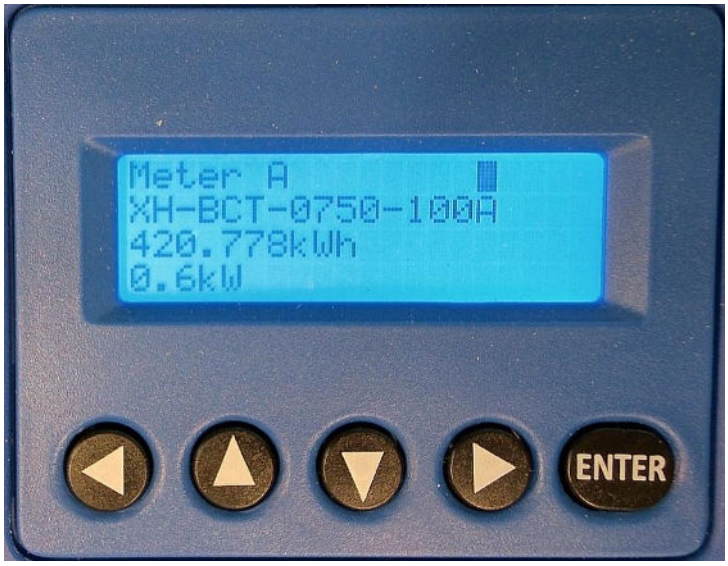
1. From the LCD main menu, pressing the down arrow button "▼", scroll to "Billing-CFG Seal:ON".



2. Press the "►" button until the meter to be tested is displayed.



3. Before the test, record the kWh reading and apply the load (420.734kWh).



4. Apply the test load. The "_" will flash to "▉" when the amount of the Kt energy has been measured. The low load test requires a minimum of 12 Kt pulses (0.060 kWh), while the high load test requires a minimum of 50 Kt pulses (0.250 kWh). Turn the load off as soon as possible when the "▉" flashes. Record the ending kWh reading.

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Test Conditions: The emphasis of the type evaluation was on marking, sealing, design, and performance from 3 amps to 30 amps at both unity and 0.5 power factors. A PowerScout12HD CL 100, CL 200, and CL 400 meters were subjected to 120 VAC to 208 VAC tests. Current Transformer (CT) models CT-RGT-19-100-U, CT-RGTM-25-200-U, and CT-RGTM-32-400-U were used. Bidirectional tests were also conducted to verify the accuracy of the flow of energy in both directions for smart metering. Similar tests were repeated after a throughput of 200 kWh over 30 days.

Evaluated By: M. Lawrence (CA)

Type Evaluation Criteria Used: *California Code of Regulations, Title 4, Division 9, Chapter 1, Article 1. General Code 1.10. and 2.2., 2023 Edition*

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

Example(s) of the Device: