State of California
Department of Food and Agriculture
Division of Measurement Standards

Certificate Number: 5424(a)-06

California Type Evaluation Program
Certificate of Approval
for Weighing and Measuring Devices

For:

Electronic Watt-Hour Meter
Models: UMS XYYY
Voltage Rating: 120/208/240 VAC
Class: 200 (200 Amps Max.)
TA: 30 Amps

Submitted by:

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Standard Features and Options

Model Designation:

UMS	X	YYY
UMS = United Metering System	1 = 1 Element or CT	120 = 120 VAC
	2 = 2 Elements or CT's	240 = 240 VAC
	3 = 3 Elements or CT's	208 = 208 VAC

Indicators:
Electromechanical (12 VDC) analog indicator. The least significant digit is highlighted **(See Fig. 1)**. Highlights vary in color.

Current Transformers (CT's):
UMS Model 415 (closed loop style white in color), Rating 415:1 A, Accuracy Class 0.3 **(See Fig. 2)**

This device was evaluated under the California Type Evaluation Program (CTEP) and was found to comply with the applicable technical 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.

Effective Date: June 23, 2006

Mike Cleary, Director

United Metering Services Inc.
Electronic Watt-Hour Meter
Model: UMS XYYY

Application: For use as a watt-hour metering system in legally sub-metered electric service applications.

Identification: The watt-hour meter marking requirements are permanently molded into the face of the meter.

Sealing: To prevent access to the wire connections of the meter, an adhesive tamper evident security seal shall be applied across the back of the meter case and connector plug. Addtionally, adhesive tamper evident seals shall be placed across both sides of the meter cover to the meter case. **(See Fig. 7)**.

Operation: **Normal operation:** The "POWER" LED is illuminated whenever line voltage is present **(See Fig. 6)**. The "Reverse Line" LED illuminates when a CT line is hooked up backwards **(See Fig. 5)**. The CT side (marked with "H") faces toward the line side when testing **(See Fig. 2)**. One increment of the 12 VDC analog indicator **(See Fig. 1)** provides the visual registration of 100 watt-hours or a Kh of 0.1 Kwh for tenant display.

Testing: The meter can be tested using a 12 VDC analog "test indicator". The "test indicator" connections are made at test points TP1 and TP2 for a "test Kh" registration of 12.5 wh per increment **(See Fig. 3)**. On newer models, the meter utilizes a blinking LED replacing the "test indicator" for the "test Kh" registration of 12.5 wh. This LED is located at TP1 and blinks on/off when 12.5 wh has expired **(See Fig. 4)**. CT line 1 (black wire) corresponds with CT1 (brown and orange wire); line 2 (red wire) corresponds with CT2 (green and yellow wire); line 3 (light blue) corresponds with CT3 (violet and green/yellow stripe), and the white wire is neutral. The wiring code is also labeled on the meter.

Test Conditions: This certificate supersedes Certificate of Approval Number 5424-05 and is issued to add a newer version of the previously approved meter model that utilizes a blinking LED instead of the "test indicator" for the test Kh registration of 12.5 wh for ease of testing. A meter was tested at the Division of Measurement Standards lab and the emphasis was on the new improved testing method (blinking LED). Previous test conditions are listed below for reference.

Certificate of Approval Number 5424-05: Samples of each model meter, current transformer, and three different indicators were submitted for evaluation. Three meters were initially tested at the Division of Measurement Standards (DMS) lab. The meters were then sealed and installed at a field location. After a permanence period of approximately 20 days the meters were returned to DMS lab for retesting. The meters were subjected to a combined total of 118 tests from 3 amps to 110 amps at both unity and 0.5 power factors.

Results of the evaluation indicate the devices comply with applicable requirements.

Type Evaluation Criteria Used: Title 4, California Code of Regulations, 2006 Edition

Tested By: John Roach (CA)

Fig. 1.
Typical electromechanical 12 VDC analog indicators

Fig. 2.
Current Transformer (CT) showing side marked "H"

United Metering Services Inc.
Electronic Watt-Hour Meter
Model: UMS XYYY

Fig. 3. "Test indicator" hooked up to TP1 and TP2 for testing the meter

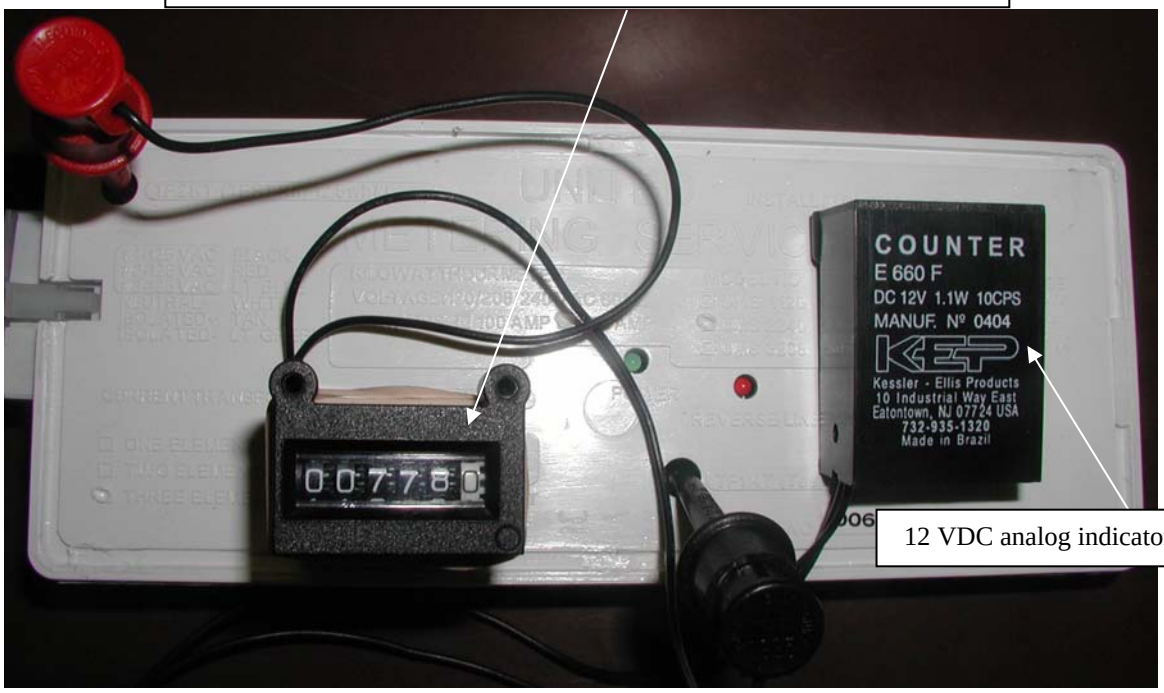


Fig. 4. New model with blinking LED

Fig. 7. Adhesive tamper evident security seals

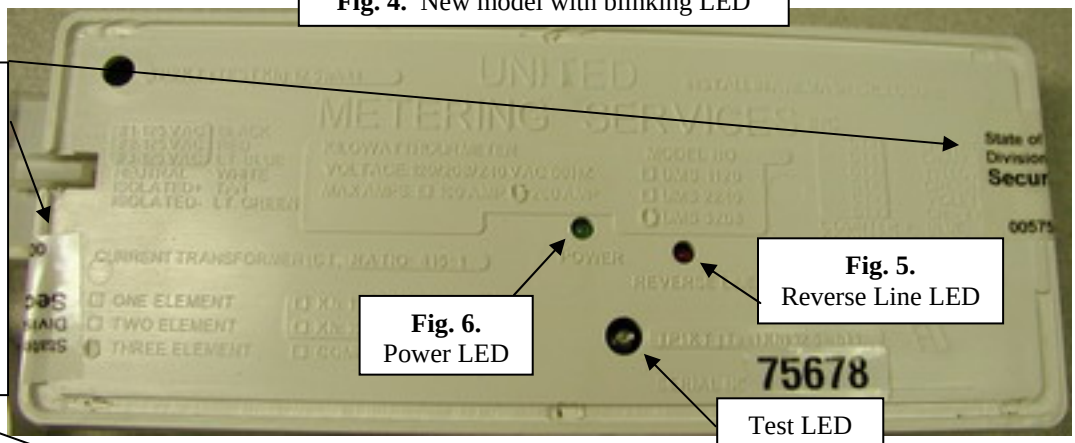
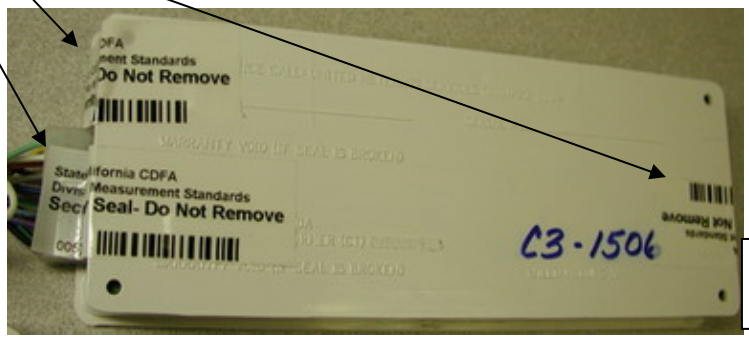


Fig. 5. Reverse Line LED

Fig. 6. Power LED

Test LED



Back view of meter