

# WECO-300

## Desktop Meter Test Station



# Operations Manual



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## **About This Operations Manual**

Radian Research, Inc. makes no warranty on the accuracy of the information contained in this Operations Manual and accepts no liability for its use.

The information contained in this Operations Manual remains the property of Radian Research, Inc. It is provided in good faith for the operation and servicing of this Radian Research, Inc. product. We reserve the right to take legal action where this information is divulged to third parties without our written consent or in circumstances that may cause us commercial harm.

The operation of this equipment requires training and experience in electric meter testing. The information in this Operations Manual is designed to supplement existing knowledge and experience already attained and practiced by journeyman-level meter test technicians. Novice meter test technicians should not attempt to operate this equipment without first gaining the basic knowledge of meter testing and the application of meter testing equipment from a certified training course.

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## About This Operations Manual

The WECO-300 Desktop Meter Test Station is designed to perform the following tasks:

- Power up form 2S, 12S, and 25S meters.
- 3 Amps or 30 Amps Load.
- Delivered and Received Energy.
- Meter Disconnect testing.

## 1.0 Product Introduction and Specifications

### 1.1 Product Overview

The WECO-300 Desktop Meter Test Station is designed to be easy to operate and requires minimal setup. A general overview of the WECO-300 and its interface is listed below.



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## 1.2 Product Features

The WECO-300 Desktop Meter Test Station is a truly compact portable desktop station weighing in at only 16.5 lbs. The WECO-300 provides a safe environment to perform a wide range of functional meter tests. The WECO 300 offers the following features:

- Integrated Zero Insertion Force (ZIF) meter test socket.
- Supported meter forms: 2S, 12S, 25S.
- 240V for meter form 2S. 120V / 240V for meter forms 12S, 25S.
- Delivered or Received power capabilities.
- Indicators for status of disconnect.
- Ability to test meter disconnect back feed interlock.
- Small footprint and lightweight for desktop use.
- No software required.

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## 1.3 Safety Information

Review the information in this section to avoid injury and prevent equipment damage. The WECO-300 was designed with safety in mind. The WECO-300 will not energize unless a meter is first installed. A four-point interlock system will disable the sources should a meter inadvertently be removed from the socket.

### **Warning**

- Follow all safety guidelines contained in this manual.

### **Caution**

- Do not use this equipment for any purpose other than for which it was designed.
- Do not operate the equipment outside of the environmental conditions specified in this manual.
- Do not operate this equipment with covers or panels removed.
- Keep equipment surfaces clean and dry.
- Handle the WECO-300 with care.
- Inspect the equipment before each use. Do not use equipment if damage is observed.

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## 1.4 Specifications

Input Voltage: 120V nominal  $\pm$  10%.  
Input Current: 1.5A max breaker protected.  
Meter Voltage: Circuit breaker protected @ 1A.  
Meter Current:  $\pm$  5% with 120V input.  
Current is supplied to both elements of the meter.

## 2.0 Operation Preparation

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### 2.1 Getting Started

#### 2.1.1 Thank you for purchase

**Thank you for purchasing this quality Radian Research, Inc. product.**

We have taken every effort to ensure that your WECO-300 Desktop Meter Test Station reaches you in perfect condition.

Your satisfaction is very important to us, and your continued loyalty is greatly appreciated. If for any reason your Radian product does not meet your expectations of exceptional performance, please contact your sales representative or Radian Research, Inc.

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Website: [www.radianresearch.com](http://www.radianresearch.com)

#### 2.1.2 Preparing Equipment for Use

Follow these steps to prepare your WECO-300 Desktop Meter Test Station for use.

##### 1. Unpack and Inspect

Carefully remove the equipment from the packaging, and check for any damage.

*Note: If you observe any damage to the equipment, immediately notify the carrier and your sales representative.*

## 2. Verify the Contents

The following items are included in your shipment:



### Shipment Contents

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## 2.2 Operational Considerations

To protect the WECO-300 Desktop Meter Test Station and ensure optimal performance, follow these guidelines:

- When placing the WECO-300 Desktop Meter Test Station for use, avoid wet or dusty environments. If the equipment is exposed to wet conditions, there is an electrical shock hazard present.
- Handle the WECO-300 with care.
- The WECO-300 Desktop Meter Test Station requires a source capable of providing 120 VAC/2A/60Hz to operate.



## 3.0 Product Features



### Components and Controls:

#### (A) Socket Open/Close Handle

- This handle controls the opening and closing of the jaws located inside of the meter socket. The jaws must be closed and the WECO-300 must detect a meter in the socket before voltage and current can be applied. You can lift the handle and reposition the operating position to your preference. By depressing the handle top button the handle can be oriented to an alternative position.

#### (B) Meter Detected LED

- This LED will illuminate when the WECO-300 has detected a meter present in the Meter Socket. The WECO-300 must be turned on, one black paddle on the top and one black paddle on the bottom must be engaged, and the Socket Open/Close Handle must be in the Closed position for the WECO-300 to illuminate this LED.

**(C) Voltage ON LED and Switch**

- The Voltage ON switch controls the application of voltage to the socket. Voltage will only be applied when the WECO-300 detects a meter present in the socket. The Voltage ON LED will illuminate when voltage is applied to the socket.

**(D) Current ON LED and Switch**

- The Current ON switch controls the application of current to the socket. Current will only be applied when the WECO-300 detects a meter present in the socket. The Current ON LED will illuminate when current is applied to the socket. The Current On switch is only active when the Voltage On switch is enabled.

**(E) Disconnect Closed Indicator LEDs**

- The Disconnect Closed LEDs will illuminate when the WECO-300 detects that the meter disconnects are closed.

**Note:** LEDs will remain illuminated if the Current Switch is ON. For the LEDs to go out, the disconnect must be open AND the current switched off.

**(F) Forward/Reverse Switch**

- The Forward/Reverse Switch controls the desired energy flow of the WECO-300. Forward is for Delivered Energy and Reverse is for Received Energy.

**(G) 30 Amps/3 Amps Switch**

- The 30 Amps/3 Amps switch lets the user select the amperes that will be applied to the Meter Socket.

**(H) Meter Socket**

- The Meter Socket holds the meter that the user is testing, as well as applies voltage and current to the meter that is present in the socket.

**(I) Power LED**

- The Power LED illuminates when the WECO-300 is receiving power and the unit is turned on.

**(J) Power Switch**

- The Power Switch on the WECO-300 turns the unit on and off. The Power Switch is also a circuit breaker to protect the entire unit.

**(K)** Voltage Breaker

- The Voltage Breaker is a “pop-out” style breaker and protects against a defective meter. If this breaker is tripped, the user can remove the meter and depress on the voltage breaker button to reset the breaker.

## 4.0 Operations Overview

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### 4.1 Meter Programming and Meter Register Reads

- Ensure WECO 300 is powered on.
- Insert meter in socket.
- Close the socket using socket open/close handle.
- Apply voltage to meter with Voltage On switch.
- Using meter manufacturer supplied software, program meter or read meter registers.
- Manually read meter registers using the meter display.
- For meter accumulate energy apply current to meter with Current On switch and select the desired load.

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### 4.2 Delivered and Received Energy Test

- Ensure WECO 300 is powered on.
- Insert meter in socket.
- Close the socket using socket open/close handle.
- Apply voltage to meter with Voltage On switch.
- Apply load current to meter with Current On switch.
- Select 3 or 30 amps load.
- Set Forward/Reverse switch in Forward position. Ensure meter is accumulating delivered energy either through meter display or with meter manufacturer supplied software.
- Set Forward/Reverse switch in Reverse position. Ensure meter is accumulating received energy either through meter display or with meter manufacturer supplied software.

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### 4.3 Disconnect Relay Test \*

- Ensure WECO 300 is powered on.
- Insert meter in socket.
- Close the socket using socket open/close handle.
- Apply voltage to meter with Voltage On switch.
- Verify Disconnect closed LEDS are illuminated for elements A and C.
- Open disconnect using meter manufacturer supplied software.
- Verify Disconnect closed LEDs are not illuminated for elements A or C.
- Close disconnect using meter manufacturer supplied software.
- Verify Disconnect closed LEDS are illuminated for elements A and C.

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### 4.4 Disconnect Back Feed Interlock Test \*

- Ensure WECO 300 is powered on.
- Insert meter in socket.
- Close the socket using socket open/close handle.
- Apply voltage to meter with Voltage On switch.
- Verify Disconnect closed LEDS are illuminated for elements A and C.
- Open disconnect using meter manufacturer supplied software.
- Verify Disconnect closed LEDs are not illuminated for elements A or C.
- Set current switch to on. This will allow voltage to the load side of the disconnect.\*\*
- Attempt to close the disconnect using meter manufacturer supplied software. Ensure disconnect will not close.
- Turn Current On switch to off position.
- Close disconnect using meter manufacturer supplied software.
- Verify Disconnect closed LEDS are illuminated for elements A and C.

\* **Note:** The meter disconnect can be opened with or without current applied. If the disconnect is opened with current applied to meter the Disconnect closed LEDs will remain illuminated until current is removed by turning off the Current On switch.

\*\***Note:** The Disconnect Closed LEDs will be illuminated with disconnect open and Current On switch enabled.

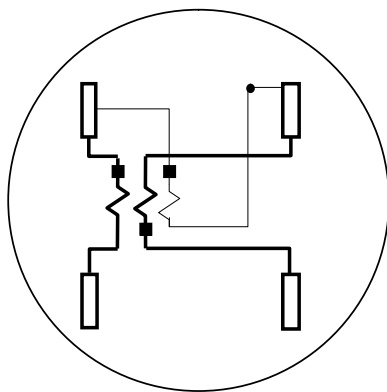
## 5.0 Routine Maintenance and Service

### 5.1 Contact Information

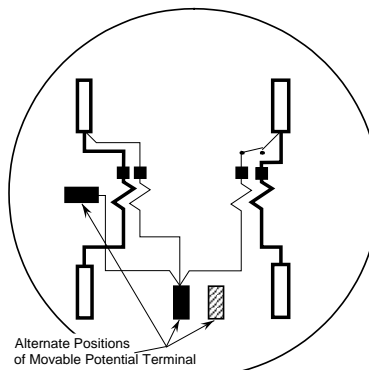
For questions related to maintenance and service, contact Radian Research, Inc.

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Website: [www.radianresearch.com](http://www.radianresearch.com)

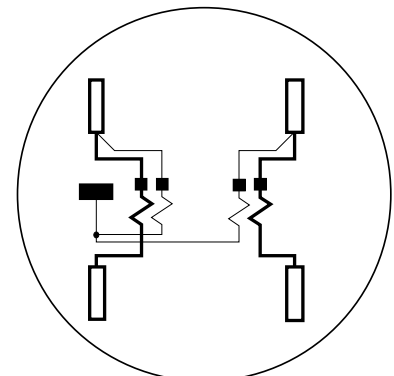
### 5.2 Routine Maintenance



3-Wire  
FORM 2S

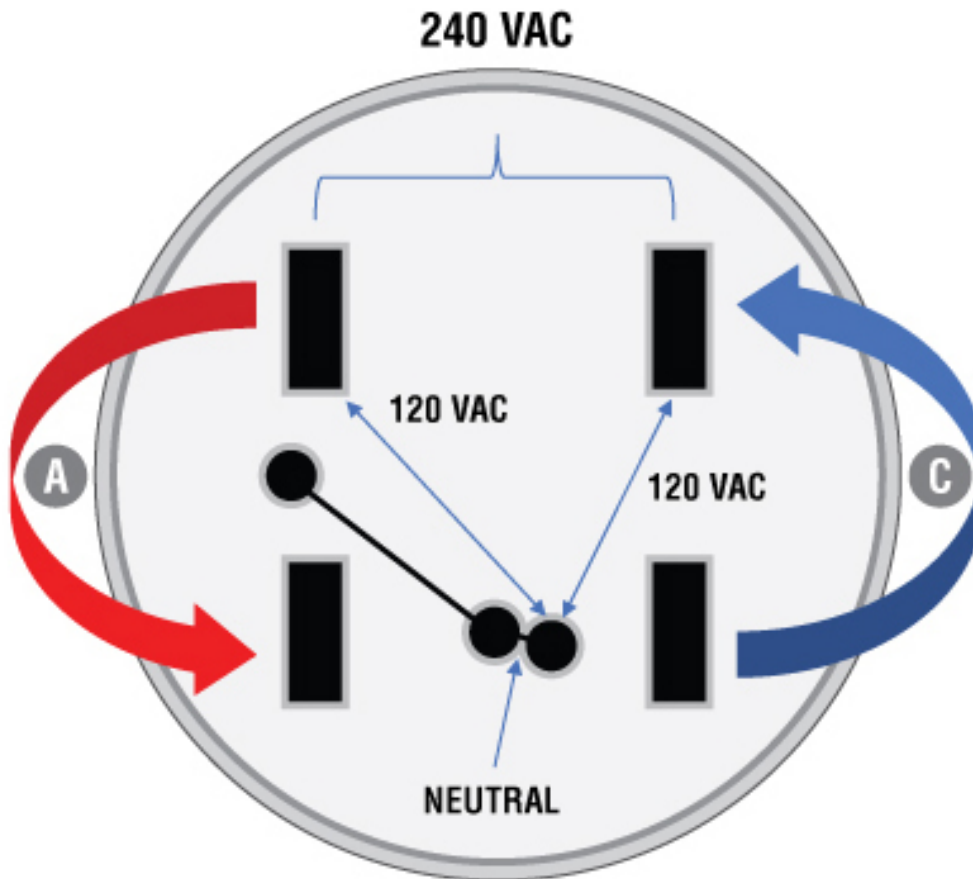


2-Element  
3-Wire  
FORM 12S



2-Element  
3-Wire  
FORM 25S

#### Meter Form Diagrams



### Meter Socket Diagram

The WECO-300 Desktop Meter Test Station requires little maintenance. However, certain maintenance tasks should be performed to maintain the life, longevity and your unit operating efficiency.

Before each use:

- Inspect the unit and power cable for any damage.

Monthly or after every 500 meters:

- Clean the surface area of the Meter Socket using a soft brush or a paint brush. Remove all dust, dirt and grime.
- Check the surface of the shield. If it contains oil or grease, use a soft cloth moistened with isopropyl or denatured alcohol to remove any contaminants. Isopropyl alcohol can be purchased at any drugstore or chain store and is preferred because it will thoroughly clean and degrease the surface without

- leaving a residue. Do not saturate the cloth, use only enough alcohol to remove the grease and not drip alcohol into the test board or the socket jaws.
- Inspect the Meter Socket surface for damage such as cracks or punctures. Surface damage is rare.
  - Clean the contact surfaces of the jaws in the Meter Socket using a soft cloth wrapped around a tongue depressor or Popsicle stick. Lightly moisten the cloth with isopropyl or denatured alcohol. Do not saturate the cloth, use only enough alcohol to remove contaminants. Be careful not to remove the lubricant at the pivot pin. Ample lubrication is applied at the factory to last the life of the socket. Excessive alcohol will collect at the pivot pin and degrade or remove the lubricant causing the jaws to wear prematurely.
  - Inspect the jaws in the Meter Socket. Look for contaminants that were not removed during cleaning. Examine the jaw for damage from debris that may have been attached to the meter spade(s). Be sure the silver surface of the contacts is not scratched or pitted. Look for signs of wear.
  - The voltage pins of the socket require minimal maintenance. Clean the pins using a soft cloth moistened with isopropyl or denatured alcohol. Apply light pressure while rubbing the contact surface of each pin in a circular motion.
  - Inspect each pin. Look for signs of wear along the shaft. Look for deep scratches on the contact surface of each pin. Also check for contaminants that may not have been removed during cleaning. Fully depress each pin and release to ensure the spring returns the contact to the original position.

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## 5.3 Warranty Service

Radian Research, Inc. warrants that each product is free from defects in material and workmanship. Our obligation under this warranty is to repair or replace any instrument or component therein that, within two years after shipment and with normal use, proves to be defective upon examination.

### **To Obtain Warranty Service:**

All warranty returns must have a return materials authorization (RMA) number. To obtain a RMA, visit [www.radianresearch.com/support.php#rma](http://www.radianresearch.com/support.php#rma) or call 765-449-5500.

### **Follow these guidelines to ensure prompt warranty service:**

- Radian Research, Inc. must authorize all warranty replacements.
- Ship returned items prepaid, fully insured, and in the original packing to minimize the possibility of damage.

- Radian Research, Inc. will not accept collect shipments and does not accept liability for damage caused by improper packing or handling during shipment.
- Include in the shipment a detailed description of the problem and the events that led up to the development of the problem.
- Radian Research, Inc. will pay local domestic surface freight costs to return the product to the customer. Radian will not pay for overnight or express shipping service.

**Use the following address for warranty returns:**

- RMA # ROXXXXX
- Radian Research, Inc.
- 3852 Fortune Drive
- Lafayette, IN 47905 USA

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## 5.4 After Warranty Service

If after-warranty service by Radian Research, Inc. is needed:

- A purchase order or credit card is required.
- The owner must pay all shipping costs.
- If requested, Radian Research, Inc. can provide an estimate for the repair. However, if the repair is not made, the cost of labor required to obtain the estimate will be invoiced at the hourly repair rate.

To Obtain After-Warranty Service:

All after-warranty service requests must have a return materials authorization (RMA) number. To obtain a RMA, visit [www.radianresearch.com/support.php#rma](http://www.radianresearch.com/support.php#rma) or call 765-449-5500. Payment information must also be provided (purchase order or credit card).

Please follow these guidelines to ensure prompt after-warranty service:

- Ship returned items prepaid, fully insured, and in the original packaging to minimize the possibility of damage.
- Include in the shipment a detailed description of the problem and the events that led up to the development of the problem.
- Radian Research, Inc. will invoice return shipping costs to the customer.