

# THE METERING CONNECTION

## NEWSLETTER

### Radian Research and Watthour Engineering Combine

Radian Research, Inc. (RADIAN) and Watthour Engineering Company, Inc. (WECO) are pleased to announce that the two companies have been combined. WECO will now be part of RADIAN's Employee Owned Company.

The combination of RADIAN and WECO creates the world's largest and most technologically innovative provider of energy reference standards, advanced energy meter testing systems, and automated laboratory calibration systems.

This brings together the strengths of WECO's Watt-Net and WINboard software with RADIAN's accurate and precise energy measurement to deliver leading edge testing solutions for all classes of electricity meters including the very latest advancements in Smart Metering.



**Radian Research WECO facility Mississippi**

WECO will continue to operate at its existing facility located in Pearl, Mississippi and RADIAN will continue to operate at the corporate headquarters located in Lafayette, Indiana. All customers and field sales representatives should understand that both facilities will remain



**Radian Research facility Indiana**

fully staffed and fully functional, thus all personnel and all contact phone numbers and email addresses have not changed. Rest assured that service and support of our customers remains the highest priority for our business at both facilities.

About RADIAN - Radian Research, Inc. is the world leader of Energy Reference Standards, Energy Meter Testing Systems, Current Transformer Testers, DC to AC Transfer Standards, and Automated Laboratory Energy Reference Systems. Radian develops and manufactures both portable and primary energy reference standards that are absolutely unequaled in accuracy, stability and reliability. Radian customers consist of electric utility companies, energy meter manufacturers, energy meter test board manufacturers and national metrology institutes.

About WECO - Watthour Engineering Company, Inc. is the leading manufacturer and supplier of products and services for use in testing, repair, maintenance, and tracking of electric meters and associated equipment within the electric utility industry. Its products are used by utility companies and meter manufacturers throughout the United States and the world. In addition to manufacturing quality electric meter test equipment, Watthour Engineering has extensive software capabilities that complement its hardware.

## Product Spotlight: WE-20 Portable Tester/Analyzer



### WECO WE-20 Portable Tester/Analyzer

The WE-20 Portable Tester/Analyzer delivers three-phase field-testing using a Radian Research RD-3x internal standard in a sophisticated, lightweight package. The following are value enhanced benefits offered by the WE-20: productivity gains, cost saving, higher meter test throughput, site analyzing without compromising or disrupting customer load, checking installation for safety and easily identifying loss revenue.

WE-20 is perfect for performing a multitude of tests at the customer's site. Test meters with or without the customer's load, perform CT burden and ratio tests, and verify system wiring for peace of mind that the metering installation is correct and safe. Harmonic Analysis, CT Testing, Vectors, and Trends can all be tested without pulling meters from the socket.

WE-20 users have reported that the benefits of performing more tests in the field and improved meter test efficiency has resulted in an increased throughput of as much as 20% of meters tested per metering personnel.

The touch screen interface allows easily access to the WE-20's features. The user friendly screens are ideal for installation, wiring checks, testing, and record keeping. Results are fully compatible with

WECO's industry-specific WATT-Net data management software using an Ethernet connection. USB keyboard and mouse connections or an external computer make interfacing with the WE-20 effortless.

Create and save a variety of test profiles for easy access from a drop-down menu when performing a test. Export data to Excel® spreadsheet software or user defined files. All WE-20 test data is compatible with WECO's WATT-Net software, enabling editing data and generation of reports. In addition, custom software can be designed that can be used for enterprise wide data requirements.

Site analysis can be performed by auto-sequencing of test profiles. The WE-20 has a wiring check feature for the detection of the service (single-phase, WYE, Delta), display the voltage and current for all three phases in an easy to read vector diagram and signals an alert to any possible wiring errors. Metric analysis function is used for viewing primary and secondary information (both instantaneous and averages) for volts, amps, phase, power factor, delta phase, frequency, watts, VARS, and VA. Trend analysis is available for tracking and graphing metric information over time for all three phases. The ability to view voltage and current waveform graphs for all three phases is made possible with the waveform analysis feature.

With an optional reference standard upgrade, harmonic analysis can be added to the WE-20, allowing extended metric analysis that includes information for both voltage and current THD. In addition, the upgrade allows displaying harmonic data (both RMS and % of fundamental) for all three phases up to the 60th harmonic as well as viewing data in graphical or numeric formats.

Accuracy of meter test results is assured because the WE-20 incorporates a Radian three-phase reference standard that is both accurate and easy to



For more information scan the QR code or visit  
[http://www.watthour.com/website/hardware\\_we20.php](http://www.watthour.com/website/hardware_we20.php)



test for certification. Choose the accuracy that is required with the choice of RD-30 (0.04%), RD-31 (0.02%), or RD-33 (0.01%) three-phase standards. Accuracy verification of the standard can automatically be performed using the WE-20's standards compare routine. The standards compare function provides an easy comparison to an external master standard without removing the standard under test from the unit minimizing downtime and reducing the need for large inventories in the meter shop.

In summary, the WE-20 Portable Tester/Analyzer is a versatile, test functionality rich instrument and is a perfect choice for today's utilities demanding requirements.

## Tech Tip: Bantam Lite, 90 Amp Output

In early 2011 Radian released the Bantam Lite, a new meter test kit that supports closed link testing by utilizing 3 isolated 30 amp current sources. The Bantam has many advanced testing features to improve safety, testing capability and testing efficiency. It was designed with a goal to reduce weight and cost, and at only 28 lbs it is one of the lightest 30 amp solutions available. After its release, the capabilities of the Bantam Lite have continually advanced. Radian has recently added a 90 amp test harness (model number RB-10-16) to allow the Bantam Lite to utilize each of the isolated current sources together for 90 amp open link testing. This unique new capability of the Bantam creates the first 90 amp field-testing solution.

Having the ability to source 90 amps allows for many additional testing applications. One application is phantom loading of installed metering Current Transformers (CT). Often when a technician goes to a site for CT testing, there is an insufficient load on-site to perform any CT tests. The Bantam Lite can be powered directly from the phase up to 480 volts and can supply 90 amps of current in phase with the voltage. There are two styles of Current Transformers, bus bar and open core, and either can be phantom loaded with the Bantam

Lite because of its isolated current output. Having a high output current source eliminates the need to wrap the leads through the CT allowing for an easier testing interface and is ideal for ratio testing of CTs.

## Radian Releases New RD-3x Brochure

Radian is proud to introduce a new RD-3x brochure. The document covers all products in the RD-3x series. The RD-3x is versatile, accurate, portable and can be used in a broad range of laboratory and field-test applications. The unparalleled accuracy of the RD-3x makes it an ideal solution for lab, field meter as well as CT testing applications.



Utilities are increasingly being driven to qualify equipment performance using defined metrology principles – this includes the way accuracy specifications are handled. The new look RD-3x brochure provides this detail never before documented in earlier promotional material. The detailed specifications do not erode the fact that the RD-3x series cover an accuracy class of 0.04 to 0.01. The stability, calibration uncertainty and temperature coefficient provide additional information for those that need it.

The information in this new document is formatted for focus on value provided to the user in an easy understandable and reader convenient approach.

To request a copy of the RD-3x brochure contact your Radian Representative or visit <http://www.radianresearch.com/contact.php>

## Radian Appoints a New Representative in the Northwest

Radian is proud to announce that Carlson Sales Inc. will represent Radian products in the Pacific Northwest. Carlson has been serving the utility industry since 1928. Home office for Carlson is in Vancouver, Washington. We believe Carlson is a welcome addition to the Radian representative network and will provide quality services that will achieve the best value for our customers.

Contact information for Carlson is as follows:

Carlson Sales, Inc.  
Vancouver, WA  
Phone: 253-882-5222  
Fax: 360-573-8289  
Email: [meter@carlson-sales.com](mailto:meter@carlson-sales.com)  
Web site; [www.carlson-sales.com](http://www.carlson-sales.com)

## Cabling Specification - Important to Performance

When making the decision to purchase equipment for electricity measurement great care should be taken that your purchase meets the specifications to fit your application. Your new equipment will need to test with accuracy, reliability and precision. What many users fail to consider is that the cabling that is used must meet the same high expectations as the measurement device. Use of the inferior cables and accessories may lead to measurement error and compromise test results.

The same care used in choosing measurement equipment should be considered in the use of any accessories or cable incorporated into the test. At Radian, our engineers design cable sets to adhere to regulations set forth by the NEC and employ the newest connector technology to ensure both accurate and safe testing, as well as durability and reliability. All our cables and leads meet the requirements of Article 400-Flexible Cords and Cables, in

the National Electrical Code (NEC) Handbook. The guidelines cover requirements for conductor material and cross section, as well as insulation materials and thickness.

Inferior cables that utilize insufficient conductor gage and insulation or improper crimping may lead to higher burden rates, voltage line drop, excessive heat and premature failure. Ultimately, these issues may lead to lower accuracy and compromise test results. Radian also recommends utilizing locking connectors when using current cables. The locking connectors ensure that the cables stay connected providing safety during testing.

The electrical resistance of a properly designed and controlled crimp joint should be equal to, or less than, the resistance of an equal section of wire. Specifications state the requirements in terms of millivolt drop at a designated current.

At Radian, we use a double tipped indenter to produce an eight indent crimp pattern which has consistently achieved superior tensile pull off values. Testing has proven that this method provides more surface area, and a lower burden than similar solder based connections. In addition, this method minimizes the amount of cold flow extrusions that results in hardening of the conductor strands and provides a less reliable connection.

The equipment you choose should be specified to meet your testing criteria along with specifying the correct cabling to ensure the desired results. If you need information on cabling specification, please feel free to contact your Radian representative. Radian products are known worldwide for high accuracy and reliability. We want to make sure that the use of inferior cabling does not diminish the performance and testing integrity you expect from Radian.

*The Metering Connection Newsletter is published by Radian Research, Inc. Any comments or suggestions are welcome. Please address all information to Radian Research, Inc. Attn: Bob McIntyre 3852 Fortune Drive Lafayette, Indiana 47905 or email to [bob@radianresearch.com](mailto:bob@radianresearch.com)*