

Product Catalog

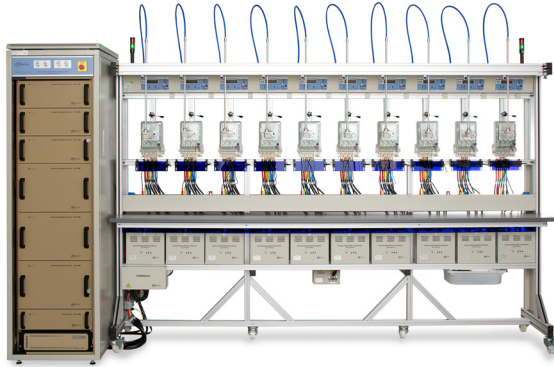
*We are the
Energy Standard*



*Meter Shop - Meter Site
Laboratory - Software - Service*

R A D I A N
WECO
Power and Energy Measurement Solutions

Fully Automatic System Enabling Simultaneous, Multi-position IEC Meter Testing



**Meter Testing System
ASTeL**

ASTeL Series Single or Three-phase IEC Meter Test System that is fully automatic enabling simultaneous, multi-position calibration and testing of IEC bottom connect electric energy meters. The system include control software, Voltage and Current sources, choice of Reference Standards, position controllers, photoelectric scanning heads, isolation transformers, and other elements.

Using the-latest-design signal processors and advanced technologies of digital signal synthesis, as well as unmatched precision, quality and functionality qualify the ASTeL system for testing the wide range of IEC electric energy meters that are available on the market, from the simplest electromechanical to multi-functional electronic meters, including prepaid, multi-system, multi-quadrant meters with power recorders.

Features:



- ▶ Choice of 1 to 60 single or polyphase meter positions
- ▶ Choice of high accuracy Current or Voltage Isolation Transformers
- ▶ Fully compliant with latest IEC Meter Testing Standards
- ▶ Independent waveforms for voltage and current signals
- ▶ Simultaneous testing of meters with different meter constants
- ▶ Modular construction and network operation
- ▶ Removable 0.04%, 0.02% or 0.01% Reference Standard

Single Position Testboard in an Economic Multi-position Solution



**Meter Test Station
WECO 8000**

The innovative WECO 8000 Meter Test Station is the first of its kind – a multi-position test board combines meter qualification, meter demand, and meter accuracy in a versatile yet economic test station. The 8000 is the solution for utilities needing the ability to perform both functional testing and accuracy testing.

Featuring Radian Direct Drive Current Source (DDCS) technology, the 8000 Meter Test Station combines the simplicity of a qualification board with the accuracy to deliver up to 50 Amps load. Perform meter qualification or accuracy tests independently from any meter socket position on the following S-Base Forms: 1-6, 8-10, 12-16, 19-21, 25, 26, 29, 32, 35, 36, 45, 46, 56, 66. Unsurpassed precision, stability, and choice of +/- 0.025% or +/- 0.050% accuracy is ensured by a NIST traceable Radian Research reference standard.



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Features:

- ▶ Includes a Desktop PC and Winboard Control Software
- ▶ Each Smart Socket™ operates independently
- ▶ Laser based optics
- ▶ Clearly Visible LEDs indicate voltage and current
- ▶ Line Side Voltage and Load Side Voltage LEDs
- ▶ Sockets can be expanded from 4 to 160 positions

Affordable MQB Series, to meet your meter testing needs



**Meter Qualification Boards
WECO 8020/8030/8050**

The Radian WECO 80XX Series Meter Qualification Boards enables the user to extensively test functional attributes of a single phase (Residential) or Polyphase (Commercial/Industrial) revenue grade electricity meter. Unlike Warm-up Boards and Load Boards that are typically limited to just powering the meter or applying a specific load amperage.

WECO 80XX Series can test “everything under glass” including metrology, communications, disconnect and safety parameters. The WECO 8020, 8030 and 8050 Meter Qualification Boards have the most diverse testing capabilities along with the safest operation using the innovative WECO open socket design only available from Radian. If you are looking for the safest most capable Meter Qualification Boards Radian is the logical choice.

WECO 80XX Series Meter Qualification Boards offer diverse capabilities.

Features:

- ▶ Meter Qualification
- ▶ Meter Demand
- ▶ Optional Meter Accuracy
- ▶ Socket Independence
- ▶ Control Interface
- ▶ Can be configured to your specific requirements



The Fastest Meter Testing Hardware



**Automated Test Platform
WECO 4150X / WECO 4330X**

The WECO 4150X and 4330X automated test platforms are the touchstone in meter testing hardware. Building on our tradition of delivering testing solutions that provide a powerful mix of accuracy, convenience, and versatility, both models add next generation features and cutting-edge technology. The NIST traceable Radian Research RX-30 series reference standard provides unparalleled accuracy to the testboards. The difference between the two models lies only in the current and the weight. Need a current range between 0.001A to 150.0A? The WECO 4150X is the testboard for you. Should you need higher current capability the WECO 4330X provides a range of current from 0.001A to 330.0A, making Full Load Class 320 testing a snap.

The foundations for this revolutionary system are the features and innovations that have put Radian at the forefront of the industry for over thirty years.



Features:

- ▶ Harmonic Generation
- ▶ Multiple VAR Test Types
- ▶ Voltage and Current Circuit Burden Testing
- ▶ Fuseless Hardware Protection
- ▶ Ease of Maintenance

*Need IEC test adapter option

50 Amp Versatile Meter Testboard



True Three-Phase Test System WECO 2350

The WECO 2350 sets the benchmark for precision and functionality in today's meter testing industry. This versatile testboard provides fully ANSI and IEC* compliant testing using either a single or three-phase voltage and current up to 50 Amps. Unrivaled accuracy is provided by the three removable NIST traceable Radian Research RD-2x series reference standards. Three-phase power combined with the file/graph capabilities of WECO Winboard™ software gives you the power to test today's meters with any combination of voltage phase angles, current imbalances, phase angle imbalances and frequencies. With the revolutionary Turbo Test™ option, you can run simultaneous series and element tests and increase the productivity of your meter shop.

Low insertion force Smart Socket™ technology, fitted with high conduction gold connections, mechanically controls the insertion and removal of meters, providing an excellent connection and extended hardware lifespan.



Features:

- ▶ Includes a Desktop PC and WATT-Net Basic
- ▶ Single or three-phase testing up to 50 amps
- ▶ Laser optics and OPTOCOM™ optics optional
- ▶ Choice of 0.04%, 0.02% or 0.01% reference standard
- ▶ Minimal insertion force Smart Socket™

*Need IEC test adapter option

Tests All Electromechanical and Solid State Meters up to 50 Amps



Single-Phase Test System WECO 2150

WECO 2150 automated test system is a series parallel testboard that uses a single voltage and three independently controlled isolated current sources to test all electromechanical and solid state meters up to 50 Amps. The internal NIST traceable Radian Research RD-20 single phase reference standard brings unparalleled accuracy.

Utilizing a precision laser optics system, the 2150 can test meters through the most grime-coated covers with unflinching accuracy. This same laser technology makes it possible to test using the disk's edge without wasting time aligning optics found with other test systems.

Safety, convenience, functionality, and reliability are at the heart of the 2150's design. Smart Socket™ technology combines auto meter form selection, extra-long socket life, minimal insertion force, and ultra-quiet operation.



Features:

- ▶ Includes a Desktop PC and WATT-Net Basic
- ▶ Affordable single phase model, tests meters up to 50 amps
- ▶ Laser optics and OPTOCOM™ optics optional
- ▶ NIST traceable RD-20 series reference standard
- ▶ Minimal insertion force Smart Socket™

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Redefine Meter Testing with the Combination of the RW-30/31X and the Model 3230



Three-Phase Shop Stand Adapter WECO 3230 & RW-30/31X

The RW-30/31X is the most versatile field test unit on the market today. It puts features like true three-phase testing, ratio testing, harmonic analysis, touch-screen display, and a site specific workflow right at your fingertips, even while testing in the field. The unit can utilize the RW's features while on site in the van as well as back at the meter shop with the WECO 3230 Smart Socket. The 3230 features built-in laser optics, Smart Socket™ technology and automatic meter form selection. Connect the RW to the 3230 side panel using the cables included and the RW Winboard Embedded software automatically sets the meter form, which will then populate on the 3230 LCD display panel, and now you are ready to test. Not only does the 3230 make testing socket meters a snap, but it expands the current capability of the RW to a full 50 amps.



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Features:

- ▶ Winboard Control Software embedded
- ▶ Automatic meter form selection
- ▶ Expands current capability to a full 50 amps
- ▶ Laser optics and OPTOCOM™ optics optional
- ▶ NIST traceable reference standard
- ▶ Minimal insertion force Smart Socket™

Single or Multi-position Warm-up Station



AMR Module Warm-Up Station WECO 3206G

WECO 3206G Meter Warm-Up Station for AMR/AMI Modules is a versatile unit that includes voltage output and voltage input connections allowing you to test power line carrier modules when using the manufacturer's supplied module. The Model 3206G has been specifically designed for meters that utilize the Aclara® (TWACS®) power line carrier communications module. Additionally, the 3206G can even be used as a simple meter warm-up station. The 3206G is a stand-alone unit that requires no additional PC or hardware for general operation.

Features:

- ▶ 0V, 120V, 240V or 480V
- ▶ Selectable currents of 0, 10, 40 or 50A for left channel (no current source for center or right elements)
- ▶ Each station full independent
- ▶ No PC required
- ▶ Minimal insertion force Smart Socket™
- ▶ TWACS PLC compatible

**Advanced Features
at an Affordable
Price**



**Desktop Meter Test Station
WECO 300**

The WECO-300 Desktop Meter Station offers advanced features, highest quality at exceptional value. 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.

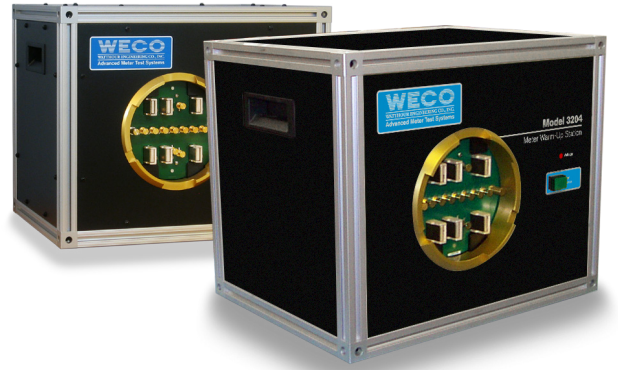
At Radian safety is a top concern, so the product design incorporates four independent levels of safety interlock minimizing the chance of operators being exposed to hazardous voltages during normal operation or when left unattended with no meter present. The WECO-300 also incorporates resettable breakers to protect from misuse or connection of faulty meters.

Combined with the available Radian Research RM-17 the WECO-300 can deliver accuracy and flexibility beyond commercial desktop top watt-hour meter test stations. The RM-17 combines simple operation, advanced data management, and exceptional accuracy to provide the definitive, cost effective approach to testing.

Features:

- ▶ Meter Programming, Evaluation and Testbed
- ▶ Form 2S, 12S and 25S
- ▶ Zero Insertion Force (ZIF) Socket
- ▶ Accepts RM-17 for Meter Accuracy Testing
- ▶ Meter Disconnect Indication
- ▶ Disconnect/Reclosure Indication

**Smart Socket™ technology will
automatically sense the meter and
clamp it in place**



**Warm-Up Station
WECO 3204 / 3205**

What do you do when an electronic meter is received, and you need to get the readings fast? Turn to your trusty WECO 3204 or 3205, of course! Why tie up expensive test equipment and personnel just to take readings? The 3205 adds a left element current source to all the features of the 3204. Currents of 0, 10, 40 or 50 Amps make the 3205 a perfect way to confirm operation of AMR devices or power meters for long term TOU (Time of Use) verification.

Smart Socket™ technology will automatically sense the meter and hold it in place. Use a barcode scanner to scan the meter label or manually enter the meter information and let the 3204/3205 do the rest. The 3204/3205 will route the voltage to the necessary socket pins supplying 120, 240 or 480 volts to the meter. The 3204 and 3205's quiet operation and small footprint make it a perfect addition to your warehouse area.

Features:

- ▶ 120V, 240V or 480V
- ▶ Serial interface
- ▶ Selectable currents of 0, 10, 40 or 50A for left element (3205 only)
- ▶ Barcode scanner select meter forms and configures meter voltage routing
- ▶ Windows® compatible ShopStand™ software
- ▶ Minimal insertion force Smart Socket™

Designed for Flexibility



Automated Demand Test System **WECO 5100**

The WECO 5100 Demand Test System (DTS) is a multi-position testboard designed to verify the operation and registration of mechanical, thermal, and electronic demand registers. The 5100 is a PC based system that provides an operator interface that is easy to learn and use, yet powerful and flexible. All setup information, test parameters, and test results are clearly displayed on a high-resolution color monitor. The operator's job is greatly simplified by the use of single key commands, programmable default tables, and on-line user help screens.

Designed for flexibility, the 5100 functions as either a time run or programmable standard revolutions test system. Meter socket bypass allows the testboard to run with less than a full complement of meters. Meter form numbers must be identical for each run, but register multipliers (and Mp or C/R if optionally equipped) can be individually entered for each test station. Testboard operation at end-of-test is also programmable, including maintaining voltage for solid-state demand registers.

Features:

- ▶ 60V-540V test voltage
- ▶ 1.0A-200A test Current, 1A-20A for transformer-rated meters, and 20A-200A for self-contained meters
- ▶ Contact device testing: Form A or C capability
- ▶ Minimal insertion force Smart Socket™
- ▶ Easy reference standard checks
- ▶ Includes UPSCALE Software



The Cost-effective Solution to Multi-position ANSI Meter Testing



Software **METERcert**

With Radian's new METERcert software, metering personnel can use the same familiar RM-17 hardware with integrated 50 Amp source both on-site and in the lab. METERcert software provides an interface that allows up to sixteen RM-17s to be operated at the same time. With the combination of the RM-17 along with METERcert, meter labs now have a low-cost alternative to a high priced large multi position meter testing system.

With the use of METERcert you will get the versatility you require for test control of up to sixteen meter sockets. At a moment's notice, the user can add and remove RM-17s to accommodate the work load on-site or in the lab. MeterCert is an easy to understand software allowing the operator to configure a new setup effortlessly. Independent control of each station allows for the use of multiple test parameters without interfering with other meters in the testing process.

Features:

- ▶ 0.05% Accuracy
- ▶ Rugged, Lightweight Package
- ▶ Simple Operator Interface
- ▶ Record, Store and Transfer Test Data
- ▶ Built-in Radian Reference Standard
- ▶ Form 2S, 4S and 12S

The Most Versatile Meter Site Solutions Ever!



RW-3x 200 Amp CT Current Boost option to energize CT Primary at dead sites

Next Generation Meter Site Analyzer



Portable Three-Phase Meter Site Analyzer RW-30/31X & RW-30/31X NS

The next generation RW-30/31X Meter Site Source Analyzer delivers three-phase field-testing utilizing the Radian Research RX series reference standard integrated within the unit. The RW can execute a multitude of tests at the customer's site which includes testing with load to ANSI requirements. Testing the meter with a precision load, customer's load, performing CT burden and ratio tests, and verifying system wiring gives you the peace of mind that the entire metering installation is correct. The RW series also provides for Harmonic Analysis, CT Testing, Vectors, and Trends Testing all without ever pulling the meter from its socket.

Using the RW is a familiar process due to Winboard Embedded Control Software.



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Features:

- ▶ Winboard Control Software embedded
- ▶ Single or three-phase testing up to 30 amps
- ▶ Light weight measurement only configuration (RW NS only)
- ▶ CT Ratio and Burden testing
- ▶ NIST traceable 0.04% or 0.02% reference standard
- ▶ Simple calibration using Standards Compare
- ▶ Internal software for stand-alone operation
- ▶ Range of iron core clamps and flex probes
- ▶ Optional Dead Site 200A load
- ▶ WATT Net Basic data management software

Redefine Meter Testing with the Combination of the RW-30/31X and the Model 3230



Three-Phase Shop Stand Adapter WECO 3230 & RW-30/31X

The RW-30/31X is the most versatile field test unit on the market today. It puts features like true three-phase testing, ratio testing, harmonic analysis, touch-screen display, and a site specific workflow right at your fingertips, even while testing in the field. The unit can utilize the RW's features while on site in the van as well as back at the meter shop with the WECO 3230 Smart Socket. The 3230 features built-in laser optics, Smart Socket™ technology and automatic meter form selection. Connect the RW to the 3230 side panel using the cables included and the RW Winboard Embedded software automatically sets the meter form, which will then populate on the 3230 LCD display panel, and now you are ready to test. Not only does the 3230 make testing socket meters a snap, but it expands the current capability of the RW to a full 50 amps.



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Features:

- ▶ Winboard Control Software embedded
- ▶ Automatic meter form selection
- ▶ Expands current capability to a full 50 amps
- ▶ Laser optics, OPTOCOM™ option
- ▶ NIST traceable reference standard
- ▶ Minimal insertion force Smart Socket™

Precision Measurements On-Site



Three-Phase Site Analyzing Standard RX-3X-A

The RX-3X-A Analyzing Standard brings precision measurements, normally associated with laboratories, to the meter site at a surprisingly affordable price. How is this possible? Radian has always designed state of the art precision measurement equipment with extreme high and low operating temperatures in mind – all site analyzers are tested at -20C to +70C. Couple precision measurement with ruggedness, throw PCSuite software automation into the mix, you have the premier RX Site Analyzing solution to meet the most demanding site measurement challenges.



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Features:

- ▶ Extremely accurate and trusted Radian Research Reference Standard
- ▶ Selectable accuracy classes
- ▶ Wide measuring range with autoranging potential and current inputs
- ▶ Analysis up to the 100th Harmonic with Intra-harmonics
- ▶ Standard RS-232 Serial communication, Bluetooth optional
- ▶ Data Storage and Transfer
- ▶ Lightweight and rugged
- ▶ Two Year Warranty
- ▶ Easily tested & certified
- ▶ Fully isolated transformer coupled inputs

Best in Class Innovative Solution



+/- 0.04% or 0.02% Accuracy

**Portable Three-Phase Meter Test Solution
RB-20 / RB-21 Bantam Plus**

The RB-20 or RB-21 Bantam Plus is our most advanced portable three-phase meter site test solution available for today's metering professional. This innovative solution supplies a safe, accurate, and highly versatile answer to the diverse test requirements of today's electric metering.

Bantam Plus is designed with portability, ease of use and safety as a priority. The onboard meter socket with auto-routing eliminates external cabling and multiple adapters. Less cabling and an automated socket that supports most meter forms provides efficient, safe and error-free testing. The low insertion socket takes minimal effort to insert the meter, and the use of an interlocking switch assures that power is not delivered to the blades until a meter is in place protecting the operator from potentially hazardous voltage.

The accuracy of the Bantam plus is provided by the choice of an embedded Radian RD-20 (0.04%) or RD-21 (0.02%) Reference Standard.

Features:

- ▶ Winboard Control Software embedded
- ▶ Automated test socket
- ▶ Synthesized voltage & 50 amps current source
- ▶ CT burden and ratio testing
- ▶ WATT-Net Basic Data Management Software



Traditional Semi-Automatic Meter Test Kit



+/- 0.04% or 0.02% Accuracy

**Ultra-compact Portable Meter Test Kit
UTEC 430**

The UTEC 430 is the first Ultra-Compact Portable Phantom Load Test Kit to support both the Radian Dytronic (RD) and the earlier generation of Radian Metronic (RM) reference standards. The ability to support both reference standards makes the 430 the ideal budgetary solution for on-site meter testing. Do not let its compactness fool you, the 430 has three 30 amp current output elements for performing single phase or three phase meter testing. Additionally, when each element is combined using the optional open link cable harness, it can source up to 90 amps.

Whether you are an entry or advanced user, the 430 is an ideal solution. No need to deal with other test solutions that consist of components from multiple manufacturers that are susceptible to training and compatibility problems. The 430 is designed and built by Radian and provides consistent and familiar functionality using the industry leading Radian Reference Standard.

Features:

- ▶ RM-111 compatible comparator
- ▶ Programmable test sequences (requires RM-111)
- ▶ Current Reversal switch
- ▶ Closed-link (Isolated 0-30 amps x 3)
- ▶ Open-link (One 0-90 Amp)
- ▶ Light Weight (25 lbs.)
- ▶ Choice of accuracy class RD-20 + 0.04%, RD-21 + 0.02%



Designed and Manufactured by Radian to Customer Specifications



**Radian Custom Built WECO Meter Farm
WECO AMI Meter Farm**

Meter Farms are designed and manufactured by Radian to customer specifications. Each panel is designed and manufactured within our Mississippi facility using high-quality components and materials that provide a long lasting, reliable meter testing solution – whatever the environment. Farms consist of multiple single or double panels housing any meter form socket or load configuration. Radian Meter Farms are constructed with a choice of high-grade aluminum panels in a fixed or a mobile structure to allow ease of future relocation.

Radian Meter Farms are an economical way for Utilities to perform firmware updates, test meter communications and functionality when deploying AMI meters. Meter Farms are also used for sample meter qualification before deploying the balance of the meters to customers. Long term testing can be done for new meters or hardware prior to release.

Features:

- ▶ Either indoor or outdoor enclosures
- ▶ Any meter form socket or load configuration
- ▶ Built to accommodate any quantity of meters
- ▶ Convenient Clamp to Clamp CT Ratio
- ▶ Installation assistance provided by Radian

Find Lost Revenue with or without Load



**Transformer Analyzer
UTEC 505**

The UTEC 505 Transformer Analyzer is designed for testing current transformers (CT) and potential transformers (PT) without interruption of the customer’s service. This instrument measures CT admittance, CT ratio, CT primary-to-secondary phase angle and the voltage, current and phase angle of the service..

The CT Admittance Test feature provides the capability of testing a CT with or withoutload. It displays the admittance value of the CT impedance which can be recorded and used as a comparative reference value on future tests. Shorted turns, circuit shunts, minor deterioration in CT performance, defective wathour meter current coils, defective test switches, and high resistance connections are easily detected from the admittance value.

Features:

- ▶ Tests CT’s Admittance and Burden capability
- ▶ Determines CT Ratio and Phase Angle
- ▶ Test PT’s Ratio capability
- ▶ Choice of Iron core, HV or flexi probe clamps

Portable, Residential Meter Testing



+/- 0.05% Accuracy

Portable Test System **RM-17**

The RM-17 Portable Watthour Test System is the most accurate 50 Amp self-contained residential meter tester available. Unlike other residential meter testers, the RM-17 is not simply an electronic meter or a resistive load used as a verifier. Instead, the RM-17 incorporates a true field-proven Radian Research watthour standard as its reference. The RM-17 has a guaranteed accuracy of +/- 0.05% which is traceable to NIST. The RM-17 is the only test system simple and safe enough for non-metering personnel yet advanced enough for experienced meter technicians. At an approximate total weight of only 8 pounds, the RM-17 is one of the lightest portable test systems available. Offering simplicity without compromise, the RM-17 sets a new standard by which all energy meter testing will be judged.



Features:

- ▶ Lightweight compact package
- ▶ Simple operation with unparalleled accuracy
- ▶ Utilizes a true Radian Reference Standard
- ▶ Store and upload test data
- ▶ Portable printer support
- ▶ Time and date stamp

High Speed Portable Battery Operated Power Quality Analyzer



Power Quality Analyzer **PQA 300**

PQA-300 Power Quality Analyzer offers recording functionality and measurement technology designed specifically for the Utility industry. The PQA-300 is a compact solution to address; Flicker PST and PLT, Voltage and Current imbalance, Sags, Dips and Swells, harmonics, inter harmonics, THD, RMS Voltage and Current, Phase and Time measurement.

The 1024 samples/second of the PQA-300 exceeds other PQ Recorders on the market and provides the resolution necessary to expose details of transient phenomena normally hidden by slower sampling speeds. Furthermore, the large data memory storage and battery backup provide long term measurement, eliminating the need to revisit sites for further data collection and analysis.

Features:

- ▶ 1024 samples/cycle every cycle
- ▶ PQA analysis software
- ▶ Battery powered
- ▶ GPS time synchronization rate option
- ▶ XCW options for continuous (gapless) recording
- ▶ Large data storage memory (up to 32GB)

**Rugged, Weatherproof,
Lightweight & Compact**



Energy Analyzer EA-100

The Energy Analyzer EA-100 is a portable, easy to use Data Recorder. Perfect for single phase or three phase site energy consumption analysis and basic power quality monitoring. The EA-100 supports standard wiring configurations including; 1P2W, 1P3W, 3P3W, 3P4W and 2.5 elements.

PVII Software is supplied with the EA-100 allowing data to be transferred to an external computer for later analysis and record keeping.

Rugged, Weatherproof, Lightweight & Compact – the EA-100 is packaged to be left on-site for continuous monitoring and recording even if power is lost the battery back-up will sustain measurements for at least 24 hours and infinite data storage. The EA-100 weighs in at 5lbs, dimensions 9.25" x 7.5" x 5" and is water resistant.

Features:

- ▶ 6 Channels
- ▶ 32 Samples/cycle
- ▶ Safety 600V CAT IV
- ▶ EA-100 Data Analysis Software

Radian's Customer Support and Services Booklet

Radian has always offered legendary Customer support that is known to be second to none. The services in this booklet are intended to take Radian's Customer care commitment to a level never before seen in our industry.

As you look through the offerings, be assured that **we want to be your partner in success!**



To request a printed copy of our Accessories Booklet please call **765-449-5500** or email radian@radianresearch.com



For an online version (PDF), please visit our web site at www.radianresearch.com/media

**Advanced Power & Energy
Measurement Technology Perfection!**



**+/- 0.04% or
+/- 0.02% Accuracy**

**Xytronic Three-Phase Reference Standard
RX-30 / RX-31**

Radian Research is committed to leading innovative and technologically superior products that provide power and energy measurement that is surpassed by none. Our engineers drew on the expertise and knowledge we acquired from our industry-leading legacy RM (Metronic) and RD (Dytronic) Reference Standards to develop the RX (Xytronic), the ultimate in power and energy measurement perfection.

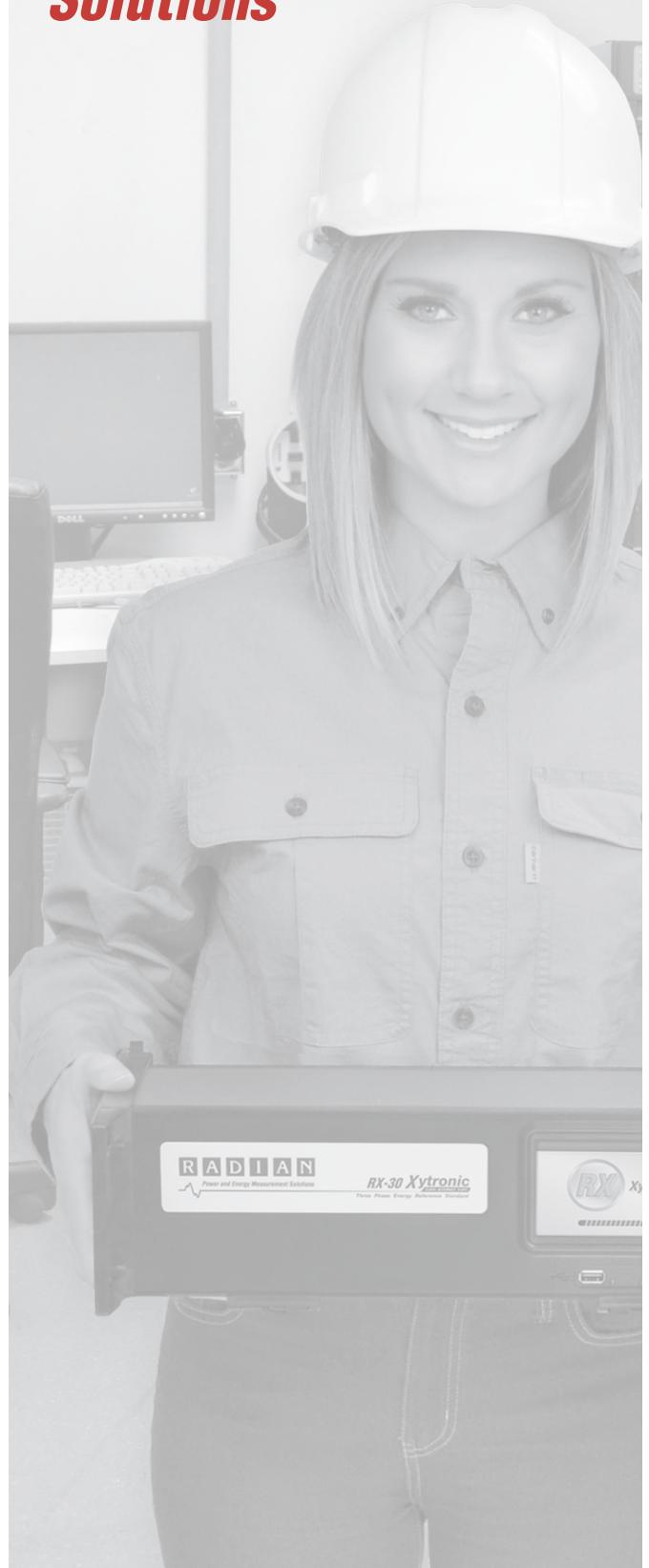
The RX is designed to operate over a broad Current, Voltage & Power Factor measurement range. A dynamic range of 30 VAC - 600 VAC, 1 mA – 200 A provides the versatility to operate in a multitude of Power & Energy applications. Three phase fully auto-ranging, simultaneous four quadrant precision measurements, computes, records and presents instantaneous metrics. The RX uses the latest ADC technology incorporating six high speed A/D converters. The RX allows the user to do more with a single instrument.



Features:

- ▶ Extended measurement range 1 mA - 200 A
- ▶ Accurate in extreme environments
- ▶ Meets IEC 61010 – CAT IV
- ▶ Extraordinarily versatile and Exceptional value
- ▶ Expanded 17025 Accreditation, Service & Support
- ▶ Maximize signal processing
- ▶ RX-30 (0.04%)
- ▶ RX-31 (0.02%)

**Power and Energy
Measurement
Solutions**



Versatile Features to meet Diverse Testing Applications



**+/- 0.04% or
+/- 0.02% Accuracy**

Xytronic Single-Phase Reference Standard **RX-20 / RX-21**

Uncompromised power and energy performance over a broad measurement range in a single rugged solution. Whether integrated within a field test box, stationary test rack or used as an engineering lab tool, the RX is extraordinarily versatile. Whatever your requirement RX can fill your need.

Most Power and Energy reference standards are designed to maintain accuracies in a temperature controlled laboratory environment. Not the RX, it is at home in a temperature controlled measurement lab and at a test site where the environment is outside the operator's control. Radian's confidence in the RX design is supported by the guarantee that it will meet class accuracy at specified temperature extremes. You can test with confidence when using the RX.

Features:



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- ▶ Extended Measurement Range
- ▶ Meets IEC 61010 – CAT IV/600V
- ▶ Extraordinarily Versatile
- ▶ Exceptional Value
- ▶ Expanded 17025 Accreditation, Service & Support
- ▶ 1,000,000 Samples/Second Processing
- ▶ RX-20 (0.04%)
- ▶ RX-21 (0.02%)

An Innovative Advancement in CT



Burden and Ratio Analysis Module **RD-BR1**

The Radian RD-BR1 Burden & Ratio Analysis Module is an innovative advancement in current transformer (CT) testing. When used with Radian's RD-2x or RD-3x Dytronic Standards this accessory provides several benefits over other testing methods. The RD-BR1 allows testing without interruption to the customer's service and the design features single cycle burden insertion with simultaneous CT ratio and phase error. The module's unique design allows all ANSI values of 0.1, 0.5, 1.0, 2.0, 4.0 and 8.0 Ohms to be inserted with virtually no magnetizing effect on the CT. When testing with the RD-BR1 the user need not be concerned with overheating. An onboard temperature controlled fan keeps the module running cool and trouble free.

Testing with the RD-BR1 can be performed using any of the multiple burden resistors available. Utilizing Radian's unique solid state technology users can select multiple burdens or the complete sequence can be performed.

Features:

- ▶ Safest CT Tester Available
- ▶ Unparalleled Measurement Accuracy
- ▶ Adds No Magnetization to CT
- ▶ Demagnetizes CT Cores

Automated Calibration in the Metrology Lab



Automated Calibration in the Lab



+/- 50 ppm Traceability

Syntron Automated Calibration System **RS-933**

The RS-933 automated energy calibration system calibrates a range of test equipment including; Energy Reference Standards, Digital Multimeters, Phase meters, Energy meters, Power meters, Revenue meters, Amp meters, Panel meters & Power Quality meters.

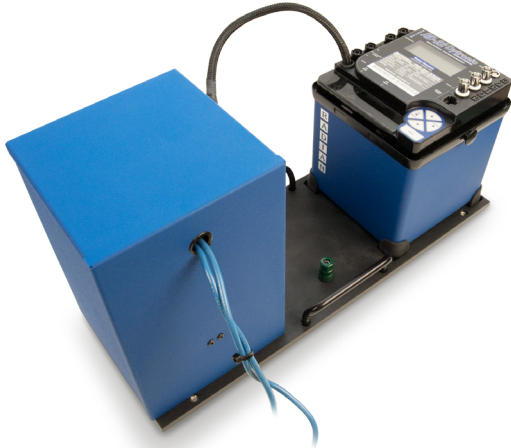
Its ability to deliver 1 mA to 200 A from one single output offers a versatile solution that reduces test time by eliminating the need to reconfigure test leads. Radian's direct drive current output technology improves stability, repeatability and settling time without the need for Energy Reference measurement standard in the system feedback found on older equipment.

The system achieves a guaranteed accuracy of 50 ppm, this delivers a superior calibration solution to address a broad range of workload.

Features:

- ▶ Single or Three phase
- ▶ Wide Currency Range
- ▶ 50 ppm Accuracy
- ▶ Automatic Testing of 16 Meters Simultaneously
- ▶ 120 or 200 Amp
- ▶ 8 or 16 Pulse Channel



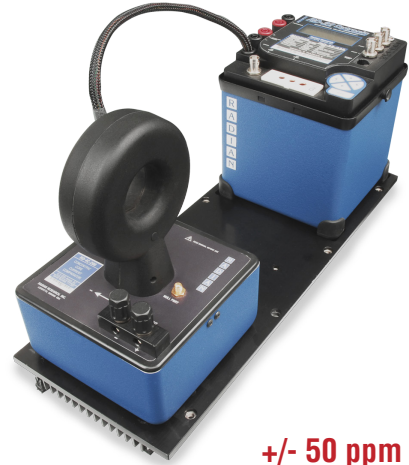
Transfer Uncertainty +/- 2 ppm**+/- 50 ppm Accuracy**
**Dytronic Primary Transfer Ultra Stable Standard
RD-22 Ultra**

The RD-22 Ultra Stable Primary Transfer Standard represents the state-of-the-art technology in a commercially available AC transfer reference. The Ultra Stable RD-22 is a variant of the RD-22 Primary Transfer Standard that has been optimized for 120/240 V @ 5A operation to provide optimum stability. In a stable test environment, repeatability for a 10-second test of $\pm 0.6 \mu\text{Wh}/\text{VAh}$ is attained at 120 V or 240 V at 5A inputs with a 95% confidence interval. A typical experimental repeatability of less than $\pm 0.25 \mu\text{Wh}/\text{VAh}$ is achieved. In a stable test environment, a reproducibility of $\pm 2 \mu\text{Wh}/\text{VAh}$ over a five-day interval is attained at 120 V or 240 V at 5A inputs with 95% confidence interval.

The technology utilized in the Ultra Stable RD-22 is based on Radian's Dytronic measurement system featuring a Radian designed Integrating Analog to Digital Converter based on a charge-balance conversion principle.

**Features:**

- ▶ Non-Galvanic Current Connection
- ▶ Concentric Core Current Comparator
- ▶ Harmonic Waveform Analysis
- ▶ Built-in Comparator
- ▶ PC Interface

Transfer Uncertainty +/- 6 ppm**+/- 50 ppm Accuracy**
**Dytronic Primary Transfer Standard
RD-22**

The RD-22 Primary Transfer Standard represents the state-of-the-art technology in a commercially available true DC to AC accuracy transfer reference. The RD-22 has typical AC measurement accuracies within the limits of traceability. Repeatability of 1 ppm can be attained at 120 V and 5 A inputs of specific models.

The RD-22 utilizes Radian's Dytronic measurement technology featuring a Radian designed Integrating Analog to Digital Signal Converter based upon a charge-balance conversion principle. The RD-22 also employs a new Radian electronically compensated concentric core current comparator transformer.

This current comparator is autoranging and external to the standard, allowing for non-galvanic current connection to the unit. These two new technologies combine with existing Radian features to provide the highest degree of accuracy, stability and versatility.

**Features:**

- ▶ Non-Galvanic Current Connection
- ▶ 50 ppm +/- Traceability Uncertainty
- ▶ Concentric Core Current Comparator
- ▶ Measurement Repeatabilities of 1 ppm at 120 Volts, 5 Amps

Ideal for Testing High End Energy Reference Standards

Advanced Power & Energy Measurement Technology Perfection!



+/- 0.01% Accuracy



+/- 0.04% or +/- 0.02% Accuracy

Xytronic Three-Phase Reference Standard RX-33

Xytronic Three-Phase Reference Standard RX-30 / RX-31

Designed for Safety Compliance Operator safety is always a concern of our customers. RX is designed to meet the requirements defined in recognized product safety standards. RX users can be assured that when designing the RX, user safety was a top concern and has been enhanced with this new reference standard.

Extraordinarily Versatile Uncompromised power and energy performance over a broad measurement range in a single rugged solution. Whether integrated within a field test box, stationary test rack or used as an engineering lab tool, the RX is extraordinarily versatile. Whatever your requirement RX can fill your need.

Expanded 17025 Lab Accreditation Customer Service & Support brand loyalty is built on trust developed over the past 35 years of uncompromised product design and manufacturing.

Features:



- ▶ +/- 0.01% Accuracy
- ▶ Four Quadrant Three-phase Measurement
- ▶ Optional Built in Computer
- ▶ Autoranging
- ▶ Accurate in extreme environments
- ▶ Meets IEC 61010 – CAT IV
- ▶ Extraordinarily versatile and Exceptional value
- ▶ Expanded 17025 Accreditation, Service & Support

Radian Research is committed to leading innovative and technologically superior products that provide power and energy measurement that is surpassed by none. Our engineers drew on the expertise and knowledge we acquired from our industry-leading legacy RM (Metronic) and RD (Dytronic) Reference Standards to develop the RX (Xytronic), the ultimate in power and energy measurement perfection.

The RX is designed to operate over a broad Current, Voltage & Power Factor measurement range. A dynamic range of 30 VAC - 600 VAC, 1 mA – 200 A provides the versatility to operate in a multitude of Power & Energy applications. Three phase fully auto-ranging, simultaneous four quadrant precision measurements, computes, records and presents instantaneous metrics. The RX uses the latest ADC technology incorporating six high speed A/D converters. The RX allows the user to do more with a single instrument.



Features:

- ▶ Extended measurement range 1 mA - 200 A
- ▶ Accurate in extreme environments
- ▶ Meets IEC 61010 – CAT IV
- ▶ Extraordinarily versatile and Exceptional value
- ▶ Expanded 17025 Accreditation, Service & Support
- ▶ Maximize signal processing
- ▶ RX-30 (0.04%)
- ▶ RX-31 (0.02%)

Radian's Product Accessories Booklet

The accessories in this booklet were designed to expand the capabilities of our core products. When you have the need to do more with your Radian equipment, we step up and provide custom accessories that will fulfill your unique requirement.

We invite you to “Put Possibilities to the Test”.



To request a printed copy of our Accessories Booklet please call **765-449-5500** or email radian@radianresearch.com



For an online version (PDF), please visit our web site at www.radianresearch.com/media

Extended Measurement Range, Light Weight and Compact



+/- 0.01% Accuracy

Xytronic Single-Phase Reference Standard **RX-23**

The RX is designed to operate over a broad Current, Voltage and Power Factor measurement range. A dynamic range of 30 VAC - 600 VAC and 5 mA – 200 A provides the versatility to operate in a multitude of power and energy applications. The AC direct current input provides fixed impedance (0.0005 Ohm) over the entire AC current input range. This capability is key to applications that require a fixed input burden and accurate yet fast measurement speed. The RX provides single-phase fully auto-ranging, simultaneous four-quadrant precision measurements, computes, records and presents instantaneous metrics. The RX allows the user to do more with a single instrument.

The RX is designed for a global market where user languages may vary. The RX accommodates different languages as well as selectable VAR calculations and a broad range of energy measurement metrics.

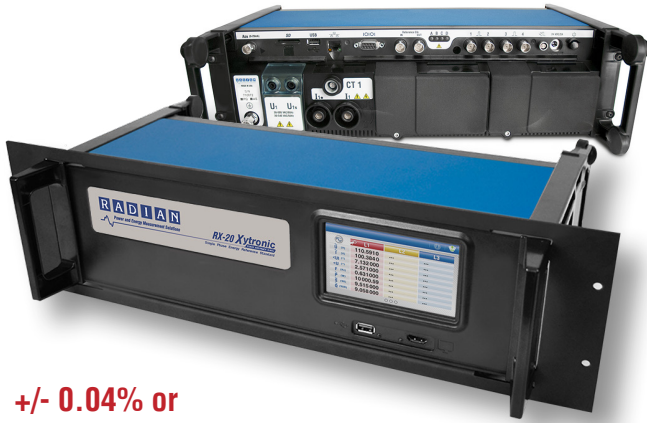
Features:

- ▶ Extended Measurement Range
- ▶ Meets IEC 61010 – CAT IV/600V
- ▶ Extraordinarily Versatile
- ▶ Exceptional Value
- ▶ Expanded 17025 Accreditation, Service & Support
- ▶ 1,000,000 Samples/Second Processing



See pages 19 & 20

Versatile Features to meet Diverse Testing Applications



**+/- 0.04% or
+/- 0.02% Accuracy**

Xytronic Single-Phase Reference Standard **RX-20 / RX-21**

Uncompromised power and energy performance over a broad measurement range in a single rugged solution. Whether integrated within a field test box, stationary test rack or used as an engineering lab tool, the RX is extraordinarily versatile. Whatever your requirement RX can fill your need.

Most Power and Energy reference standards are designed to maintain accuracies in a temperature controlled laboratory environment. Not the RX, it is at home in a temperature controlled measurement lab and at a test site where the environment is outside the operator's control. Radian's confidence in the RX design is supported by the guarantee that it will meet class accuracy at specified temperature extremes. You can test with confidence when using the RX.

Features:

- ▶ Extended Measurement Range
- ▶ Meets IEC 61010 – CAT IV/600V
- ▶ Extraordinarily Versatile
- ▶ Exceptional Value
- ▶ Expanded 17025 Accreditation, Service & Support
- ▶ 1,000,000 Samples/Second Processing
- ▶ RX-20 (0.04%)
- ▶ RX-21 (0.02%)



See pages 19 & 20

Offering the Best in Measurement Instruments, our Calibration Laboratory is ISO/IEC-17025:2005 Accredited



Certificate # 3784.01

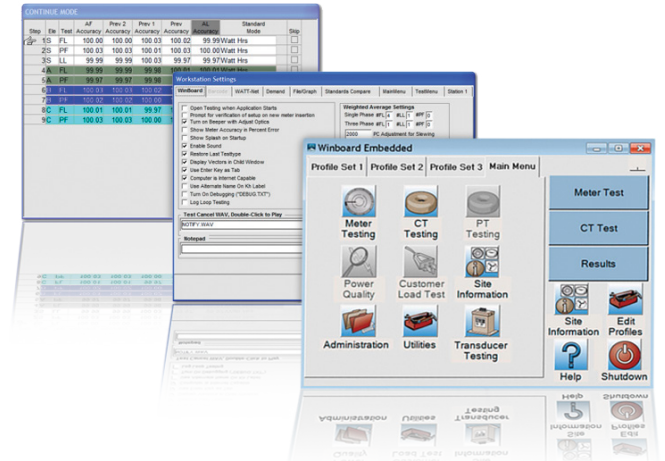


For Certification and Accreditation information please go to...
<http://radianresearch.com/cert.php>

The Premier Software Solution For Electric and Gas Utilities



Unlock the power and flexibility of your Meter Testing Equipment



Equipment Control Software Winboard™ Embedded

Add power and flexibility to your meter testing equipment with Winboard™ testing software. Winboard utilizes software “Wizards” to simplify even the most complicated tasks. The user-friendly interface makes it easy to select test sequences, elements, and service types. The combination of file/graph, test time, and Hyper Sequence™ features gives you total control over all test parameters. Customizable security options and our dedicated customer support team makes this software a valuable asset to your metering operation.

Three-phase power combined with the file/graph capabilities of Winboard software gives you the power to test today’s meters with any combination of voltage phase angles, current imbalances, phase angle imbalances and frequencies. In addition combined with our optional testboard Turbo Test™ accelerated testing system for solid state meters, you can run simultaneous series and element tests and increase the productivity of your meter shop dramatically.

Features:

- ▶ WECO Testboards include a desktop PC and Winboard
- ▶ RW and RB Equipment includes Winboard Embedded
- ▶ Software wizards simplify the most complicated tasks
- ▶ Easy to select test sequences, elements, and service types
- ▶ Allows total automated control over all test parameters
- ▶ Customizable security options

Feature Comparisons



Data & Asset Management Software WATT-Net Software Suite

The WATT-Net Software Suite supplies today's meter shop with comprehensive solutions for meter testing data management and meter asset management. For over 35 years, RADIAN and WECO have maintained industry leadership with meter testing data software as a major component of the meter testing solutions it provides. With a rapidly growing customer base of over 900 customers, the software suite is constantly evolving to help utilities improve efficiency.

RADIAN and WECO software is scalable, it caters to utilities of all sizes and needs. The entry level WATT-Net Basic™ (WNB) is complimentary and limited to two concurrent database connections for RADIAN and WECO Shop and Field equipment. WATT-Net Basic is easily upgradable to WATT-Net Express™ (WNE), WATT-Net Limited™ (WNL), and WATT-Net Plus™ (WNP). Powerful modular design and valuable software support services are available with each package. Therefore, make the WATT-Net Suite an easy choice for each utility to meet its unique set of needs.



	WATT-Net Basic	WATT-Net Express	WATT-Net Limited	WATT-Net Plus
Manual Export of Test Data	●	●	●	●
Powerful Custom Reports	●	●	●	●
Dynamic Sequencing	●	●	●	●
Barcode Scanning	●	●	●	●
New Meter Support	●	●	●	●
CTs, PTs, Transducers and Standards	●	●	●	●
Site Administration	●	●	●	●
Field Data Synchronization	●	●	●	●
Two-way Field and Shop Data Synchronization		●	●	●
Unlimited Equipment Sync (Radian Equip Only)		●	●	●
Centralized Database		●	●	●
Proxy Sync (Inter-node Sync)		●	●	●
WECO Legacy Data Conversion		●	●	●
Dataview Configuration		●	●	●
Configurable Manufacturer File Import		●	●	●
NISC Intergration		●	●	●
KNOPP CT/PT Data Testing		●	●	●
Enterprise Intergration			●	●
Web Reports			●	●
AMI Devise Support			●	●
Advanced Reporting Filters			●	●
Manufacturer Online			●	●
Field Assistant			●	●
Shop Assistant			●	●
Device Analytics Management (DAM)			●	●
First Article Verification			●	●
In-Service Sample Management			●	●
New Device Acceptance			●	●
RMA Workflow, Tracking and Reporting			●	●
Work Order and Inventory Control			●	●
Power Quality Capture			●	●
Site Check Verification			●	●
Shop Test AMI Intergration			●	●
Function Testing Automation				●
Advanced Custom Configuration				●
Third Party Retirement Board Adapter				●
Omicron CT Tester				●
Gas Devices Integration				●
Gas Prover Integration				●

● Optional modules available for purchase



*For more detailed RADIAN / WECO product information, please request product specific brochures and datasheets from radian@radianresearch.com or call **765-449-5500***

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