

Specifications

Watthour Accuracy

All errors are in percent of reading at any combination of the normal operating conditions. Note that stability is included within the maximum accuracy specification.

UNITY POWER FACTOR	0.01% typical, 0.05% maximum
0.5 LAG POWER FACTOR*	0.01% typical, 0.05% maximum

*Power factor is referenced to Watthours and it is also assumed that voltage is the reference vector.

Normal Operating Conditions

INPUT VOLTAGE	60 to 600 VAC (Aurorance)
OUTPUT CURRENT	0-50 Amps (Adjustable)
POWER FACTOR	Unity and 0.5 Lagging Power Factor
RELATIVE HUMIDITY	0 to 95%
FREQUENCY	48 to 62 Hz
ORIENTATION	Any
RECALIBRATION	365 days
SHOCK AND VIBRATION	Any which is nondestructive
NORMAL OPERATING RANGE	-20° to 70 C ° (-4 to 158 F °)

Physical Description

HAND CONTROLLER	190 mm (7.5") H 105 mm (4.00") W 33 mm (1.25") D approx.
SOCKET ADAPTER	178 mm (7.0") W 178 mm (7.0") D approx.
WEIGHT	7.25 lbs.

Influence Affecting Accuracy

NONE

Input

PICKUP TERMINAL	Lemo, pulse input for Radian RR-1H, RR-DS, or RR-IRDS
INPUT/OUTPUT TERMINAL	BNC, RM-1S Remote Reset Switch

Output

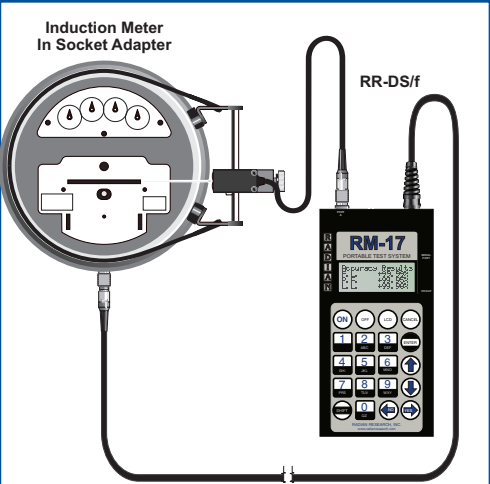
INPUT/OUTPUT TERMINAL	BNC, 0.00001 pulse output value
PRINTER/PCA TERMINAL	RS-232 Port

Accessories Available

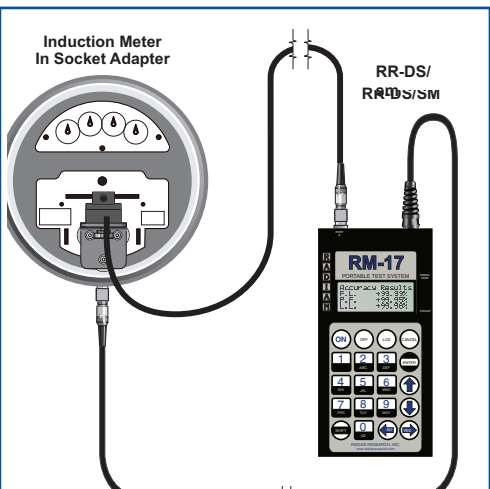
- RM-1S Remote Reset Switch
- RD-TJ Test Jack
- RR-1H Optical Pickup for Infrared LED
- RR-DS Meter Disk Sensor
- Portable Thermal Printer
- PCA-LINK™ Software
- RM-TJ Test Jack
- RR-IRDS Combination Sensor

Warranty

The RM-17 is warranted to be substantially stable in calibration over time. If within one year after factory calibration the RM-17 does not meet its specifications, Radian will repair and recalibrate the unit. Radian Research warrants the RM-17 to be free from defects in material and workmanship. Radian will repair or replace any instrument or component therein which, within two years after shipment, proves to be defective upon examination.



Running a test using an RR-DS/f Field Mount Disk Sensor



Running a test using an RR-DS/SM Suction Mount Disk Sensor



Running a test using an RM-1S Remote Reset Switch

RM-17

Portable Watthour Test System



Unparalleled Accuracy

Utilizes a True Radian Reference Standard

Store / Upload Test Result Data

Portable Printer Support

Time / Date Stamp

Simple Operation

Light, Compact Package

Overview

The Radian Research RM-17 Portable Watthour Test System offers simplicity without compromise for testing residential watthour meters. In a compact, lightweight package of approximately 7 pounds, the RM-17 delivers accuracy and flexibility beyond commercial table top and floor standing watthour meter test systems. The RM-17 combines simple operation, advanced data management, and exceptional accuracy to provide the definitive, cost effective approach to field testing.

The RM-17 Portable Watthour Test System is the most accurate self-contained residential meter test system available. Unlike other residential meter testers, the RM-17 is not simply a verifier. Instead, the RM-17 incorporates a true Radian Research watthour standard as its reference. The RM-17 has a guaranteed accuracy of +/- 0.05% which is traceable to NIST. The inherent Radian watthour standard accuracy allows for the meter's accuracy to actually be tested instead of merely verified. This accuracy will allow the RM-17 to easily test future solid state residential meters.

The RM-17 Portable Watthour Test System automates and greatly simplifies on-site testing of residential billing meters. This simplicity allows non-metering personnel to easily handle testing associated with billing complaints. Test results are clearly shown on the RM-17's display for the operator and the electric utility customer. Clear, straightforward test procedures make it easy for the utility customer to observe and understand the test. Portable printer support allows test results to be printed on site for further customer assurance.

The RM-17 Portable Watthour Test System eliminates the need for manual record keeping making paperless meter testing a reality. Up to 80 sets of test result data can be stored in the RM-17 Hand Controller. These results can later be uploaded to a computer for further storage and manipulation. All test results are time/date stamped to further enhance maintenance of test records. Identifying information such as User ID and Meter ID can be entered and stored with the results of each test.

The ability to create and store multiple test configurations in the hand controller further simplifies the role of field test personnel. Standard test configurations can be created with a computer using optional PCA-Link™ software. These setups can then be downloaded into multiple hand controllers at one time ensuring consistent procedures across an entire field test operation.

As with other Radian products, the RM-17 is backed by the most aggressive warranty in the industry. Technical specifications are detailed on the back page.

The lightest, most advanced, self contained residential meter test system available

While simple to use for non-metering personnel, the RM-17 offers advanced features tailored for experienced meter technicians and supervisors. The RM-17 combines data management with superior accuracy and flexibility to provide a completely systematic approach to residential meter testing. Advanced data management features enable a truly paperless field testing operation making for optimum efficiency in an increasingly competitive electric utility environment. As the producer of the world's most accurate watthour standards, Radian Research will not settle for merely verifying a meter's operation. Using a true Radian standard as its reference, the RM-17 is the consummate residential meter test system providing typical accuracies 10 to 50 times greater than watthour verifying products. Full ANSI C12 compliance including 0.5 lagging power factor testing as well as kW demand testing further distinguishes the RM-17 as the only portable test system flexible enough to meet the diverse needs of today's electric utility company.

Data Management and Control

The RM-17's unprecedented data management capabilities allow for enhanced recordkeeping and supervisory control of the meter testing operation. Storage of up to 80 sets of test result data in the RM-17 Hand Controller enables paperless field testing. Recordkeeping is further enhanced by time/date stamping of test results, user input of identifying information, and seamless upload of data to a computer. Multiple test setups, up to 10 can be created using a computer and optional PCA-Link™ software. These setups can be efficiently downloaded into multiple hand controllers at one time providing increased consistency and control of the meter testing operation.

Flexible Testing Methods

The RM-17 provides the electric utility with multiple testing operations. For testing induction meters the operator can count disk revolutions while starting and stopping the test from the hand controller. Experienced metering personnel preferring traditional snap switch operation can use an optional RM-1S Remote Reset Switch. The optional RR-DS Meter Disk Sensor can be utilized to automatically sense disk revolutions. Radian offers the RR-DS with different mounting arrangements further enhancing user flexibility. For electronic meters, the optional RR-1H Optical Pickup can be utilized to sense infrared calibration pulses. The available RR-IRDS sensor combines infrared and mechanical dish detection.

Rugged, Lightweight Package

RM-17 System Highlights

Meter Forms 1S, 2S, 2SE, 12S (network), 12SE, 25S
Class 100, 200 and 320 amp service
Autoranging voltage: 60 V to 600 V
kW Demand testing
Results in % Error or % Registration
Store/Upload test results
Create/store multiple test configurations
Portable printer support
Time/date stamp of test results
Utilizes a true watthour standard
Test Light Load, Full Load, and 0.5 lagging Power Factor

Ease of Operation

While providing the advanced functionality expected by experienced meter technicians, the RM-17 offers the ease of operation required for non-metering personnel. The operator simply removes the watthour meter from the socket and replaces it with the RM-17 Socket Adapter. The meter under test is then set in the Socket Adapter. Next, the operator selects test parameters from the RM-17 Hand Controller and initiates the test. Testing is then facilitated automatically by the RM-17 with little or no operator involvement depending on the testing method used. As its name implies, the hand controller consists of a compact, lightweight package allowing the unit to be easily held in one hand. The hand controller features an alphanumeric keypad with large tactile buttons strategically located for ease of command selection. Operator commands are entered by way of a logical menu system enhanced by a 4 line, 16 character LCD display.

Safety

Because the RM-17 may be used by non-metering personnel, safety was a primary design focus. Test voltages and currents are not present within the hand controller. The enclosed wiring of the socket adapter eliminates the need for the operator to make any manual voltage or current connections. After following electric utility specified disconnect procedures the operator need only to remove the meter, replace it with the socket adapter and then set the meter in the adapter. Safety is further enhanced by virtue of an interlock sensing technique which does not allow voltage to be present at the socket adapter jaws until the meter is set. For added safety, voltage is not applied to the socket adapter jaws until the test is initiated with the hand controller. A complete description of proper usage and detailed safety features are listed in the operations manual.

Accuracy Certification

The RM-17 is the only system of its kind to come with a complete calibration report certifying measurement accuracy across its entire operating range. The RM-17 can be easily tested with a simple accuracy certification test procedure using a Radian RD-21 Reference Standard and the optional RD-TJ Test Jack. This calibration test is completely automated and generates a test sheet based on measurement comparison with the RD-21 standard. This calibration test data is stored in the hand controller and may be downloaded to a PC using PCA-Link for easily maintaining an accuracy certification history for each RM-17. Complete recertification and recalibration service is available from Radian's NIST traceable calibration laboratory.

