RM-18 Portable Watthour Test System

Product Bulletin 1800

Automated Testing and Results Calculation

Utilizes a True Radian Reference Standard

Automated Accuracy Certification

Light Load, Full Load, and 0.5 lagging Power Factor Testing

Optional Disk Sensor and Optical Pickup

Light, Compact Package

Simple Operation

OVERVIEW

The Radian Research RM-18 Portable Test System offers the accuracy and legitimacy of true ANSI C12 meter testing in a light, compact test kit that is both simple and safe to operate. The RM-18 incorporates a true Radian Research watthour standard as its measurement reference. The typical accuracy of the RM-18 is +/- 0.05% with a conservative worst case accuracy of +/- 0.10% which is traceable to NIST. This inherent Radian watthour accuracy allows for the meter's accuracy to be actually tested and not merely verified. These key attributes of the RM-18 make it ideal for performing customer complaint testing on residential billing meters.

The RM-18 offers unprecedented ease of operation. The operator simply removes the watthour meter from the socket and replaces it with the RM-18 Socket Adapter. The meter under test is then set in the Socket Adapter. Test parameters are selected and the test initiated from the RM-18 Hand Controller. The RM-18 remembers the last set of test parameters entered increasing efficiency when testing multiple meters of the same type. Testing is facilitated automatically by the RM-18 with little or no operator involvement depending on the testing method used. Results are calculated and displayed on the RM-18 Hand Controller in either % error or % registration format. One set of results is stored in the hand controller for later recall.

The RM-18 provides multiple testing operations. For testing induction meters the operator can count disk revolutions while starting and stopping the test from the hand controller. Traditional snap switch operation is achieved using an optional RM-1S Remote Reset Switch. The optional RM-DS-TS Meter Disk Sensor can be utilized to automatically sense disk revolutions. Radian offers the RM-DS-TS with different mounting arrangements further enhancing user flexibility. For electronic meters, the optional RM-1H-TS Optical Pickup can be utilized to sense infrared calibration pulses.

The RM-18 comes with a complete calibration report certifying measurement accuracy across its entire operating range. The RM-18 can be easily tested with a simple accuracy certification test procedure using a Radian RM-10 Portable Watthour Standard or an RM-11 Primary Watthour Standard and the optional RM-TJ Test Jack. This calibration test is completely automated and generates a test sheet based on measurement comparison with the RM-10 or RM-11 standard. This calibration test data is stored in the hand controller for ease of recall. Complete re-certification and recalibration service is available from Radian's NIST traceable calibration laboratory.

Safety was a primary design focus of the RM-18. 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. An electronic sensing mechanism 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.

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Technical Specifications

RM-18 Portable Watthour Test System

MODELS AVAILABLE

- RM-18-01 Forms: 1S, 2S
- RM-18-02 Forms: 1S, 2S, 12S (Network only)

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

AT UNITY POWER FACTOR	*0.05% typical, 0.10% maximum*
AT 0.5 LAG POWER FACTOR	*0.05% typical, 0.10% maximum*

NORMAL OPERATING CONDITIONS

INPUT VOLTAGE	*60 to 300 VAC (Autorange)*
MAXIMUM TEST CURRENT	*30 Amps*
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***
Weight - 0.94 lbs	*105 mm (4.00") **W***
	*33 mm (1.25") **D** approx.*
SOCKET ADAPTER	*178 mm (7.0") **W***
Weight - 5.78 lbs	*178 mm (7.0") **D** approx.*

INFLUENCE AFFECTING ACCURACY

NONE

INPUT

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

OUTPUT

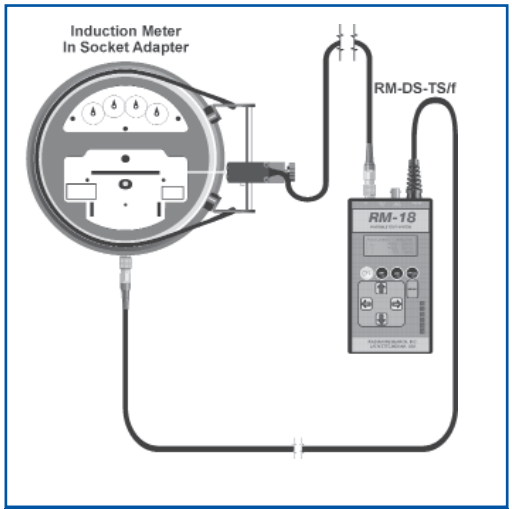
INPUT/OUTPUT TERMINAL	*BNC, 0.00001 pulse output value*
PCA TERMINAL	*RM-PCA Communications to RS-232 Port*

ACCESSORIES AVAILABLE

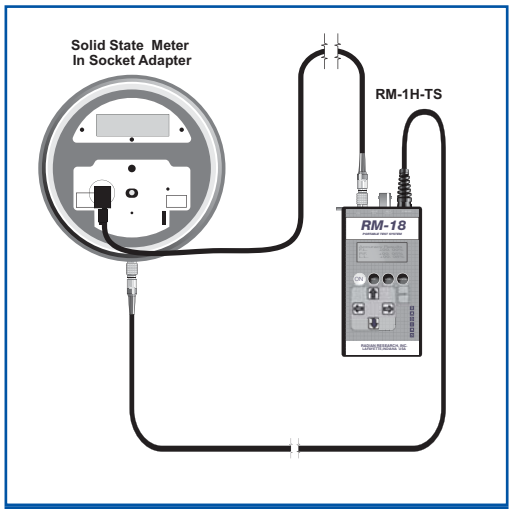
- RM-1S Remote Reset Switch
- RM-1H-TS Optical Pickup for Infrared LED
- RM-PCA Computer Interface Adapter with PCA-*Lab*™ Standards Testing Software
- RM-DS-TS Meter Disk Sensor
- RM-TJ Test Jack

WARRANTY

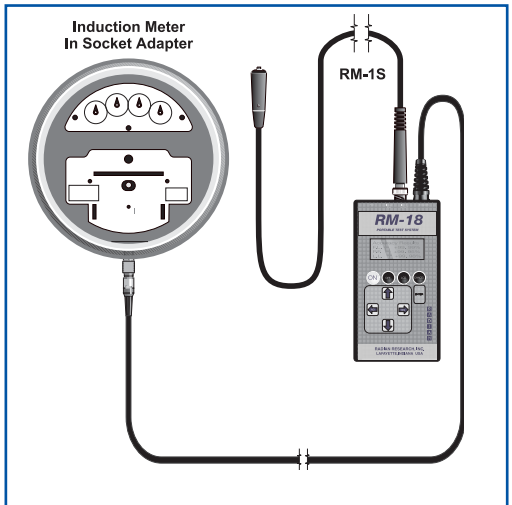
The RM-18 is warranted to be substantially stable in calibration over time. If within one year after factory calibration the RM-18 does not meet its specifications, Radian will repair and recalibrate the unit. Radian Research warrants the RM-18 to be free from defects in material and workmanship. Radian 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 RM-DS-TS/f
Field Mount Disk Sensor



Running a test using an RM-1H-TS
Optical Pickup for Infrared LED



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

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