RD-23
PORTABLE SINGLE-PHASE REFERENCE STANDARD

- Typical Accuracy: within traceability uncertainties
- Worst Case Accuracy: ±0.01% @ PF≥0.5

INTRODUCTION

The portable RD-23 single-phase reference standard is one of the most versatile reference instruments ever. The RD-23 has a worst case accuracy of ±0.01 % for all measurement functions across its entire operating range, with a typical accuracy that is within traceability uncertainties. This worst case accuracy specification includes the variables of stability, power factor, traceability uncertainty and test system errors.

A unique design makes the RD-23 unsurpassed in its ability to accurately measure “real world” waveforms. The RD-23 reference meter, includes an exclusive analog to digital signal converter. The RD-23 built-in converter is combined with Radian Research’s renowned electronically compensated voltage and current input transformers and a hermetically sealed reference. This combination-provides the highest degree of accuracy, stability and versatility offered in a portable three-phase standard.

CHARACTERISTICS

The compact light weight design of the RD-23 makes it an ideal reference standard for field testing applications. The RD-23 may be used with a controlled current source to accurately test revenue meters. In field applications the RD-23 can perform a single-phase meter accuracy test using existing service loads. Pickups to sense meter disk rotation or calibration pulses of infrared, visible light, or KYZ signals plug directly into the RD-23. It can be utilized to test reference standards of lesser accuracy and is also an ideal standard to be intergraded within a meter test bench where lower accuracy is acceptable.

TECHNICAL DATA

Current range	1 × 1mA ... 120 (200 / 225)A (1) auto-ranging
Voltage range	1 × 30 ... 600V auto-ranging
Auxiliary power range	1 × 60 ... 600V auto-ranging
Frequency of the fundamental	40 ... 70Hz (2)
Power Factor range	Any
Operating temperature range	-20°C ... +70°C
Humidity	0 ... 95%, non-condensing
Measurement modes	2 wire active and reactive
Measuring functions	Four quadrant, single-phase, simultaneous measurement of : □ energy (active, reactive, apparent) □ power (active, reactive, apparent) □ voltage □ current □ power factor □ phase angle □ harmonics
Accuracy	Typical Accuracy: within traceability uncertainties Worst Case Accuracy: ±0.01% @ PF≥0.5
Temperature influence outside normal operating temperature range	±0.00025%/°C (±2.5 ppm/°C)
Accuracy of angle	±0.003°
Display Gate input	BNC with 150 ohms pull up to 5 volts, clamped at 5.7 volts
Gate Rate	200ns pulse width minimum, maximum 20Hz repetition rate
Output type	Open collector, clamped at 27 volts
BNC pulse output default value	0.00001Wh/pulse but may be reprogrammed
Output frequency	Max 2.1MHz (200ns pulse width minimum)
Display	On demand
Other possible features (upon request)	Built-in comparator Harmonic analysis (up to 50th)

(1) Operating range. Specified range from 10mA to maximum current.
(2) Operating range. Specified range from 45 to 65Hz.
For additional technical details, please contact our sales department (sales@metertest.eu)

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