RD-33
THREE-PHASE REFERENCE STANDARD

☐ Typical Accuracy: within traceability uncertainties

☐ Worst Case Accuracy: ±0.01% @ PF≥0.5

METERTEST
INSPIRED BY ENERGY

INTRODUCTION

The RD-33 three-phase reference standard is one of the most versatile reference instruments ever. The RD-33 has a typical accuracy within traceability uncertainties for all measurement functions across its entire operating range, with a maximum worst case accuracy of ±0.01%. This worst case accuracy specification includes the variables of stability, power factor, traceability uncertainty and test system errors.

A unique design makes the RD-33 unsurpassed in its ability to accurately measure "real world" waveforms. The RD-33 reference meter includes an exclusive analog to digital signal converter that 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 Harmonic Analysis option makes it possible to analyze loads through the 64th harmonic order. A built-in Comparator option provides automatic calculations of test results for the meters and standards being tested.

The RD-33 can be used with a controlled current source to test revenue meters and reference standards. In field applications, the RD-33 can perform a true three phase meter accuracy test using an existing service load. Pickups to sense meter disk rotation or calibration pulses of infrared, visible light or KYZ variety plug directly into the unit.

The RD-33 is ideal for testing high-end energy meters found in power plants, substations, inter-tie points and at large utility customer accounts. The RD-33 is also the perfect complement to relay test sets where it can serve as an active reference standard when testing meters or can be used to periodically certify the accuracy of the test set itself.

TECHNICAL DATA

Current range		$3 \times 1mA$ ... 120 (200)A [(1)] auto-ranging
Voltage range		3×30 ... 630V @60Hz auto-ranging 3×30 ... 525V @50Hz auto-ranging
Auxiliary power range		3×60 ... 630V 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 □ 3 wire active □ 3 wire reactive mode true or cross-connected □ 3 wire apparent □ 4 wire active mode □ 4 wire reactive mode true or cross-connected □ 4 wire apparent
Measuring functions		Four quadrant, three-phase, simultaneous measurement of energy (active, reactive, apparent), power (active, reactive, apparent), voltages, currents, power factors, phase angles, harmonics
Power/energy accuracy		Typical Accuracy: within traceability uncertainties Worst Case Accuracy: ±0.01% @ PF≥0.5
Current accuracy		0.007% (70 ppm)
Voltage accuracy		0.005% (50 ppm)
Power/Energy long term drift		1st year: 0.0014% / 1st five years: 0.0031% / 1st 10 years 0.0044%
Current long term drift		0.0010% first year
Voltage long term drift		0.0007% first year
Accuracy of angle		±0.003°
Temperature drift	+20 °C ... +30 °C	none
	-20 °C ... +70 °C	±0.0005%/°C (±5 ppm/°C)
Display Gate input		BNC with 150Ω pull up to 5V, clamped at 5.7V
Gate Rate		200ns pulse width minimum, maximum 20Hz repetition rate
Output type		Open collector, clamped at 27V
BNC pulse output default value		0.00001Wh/pulse but may be reprogrammed
Output Frequency		Max 2.1MHz (200ns pulse width minimum)
Display		Optional
Other possible features (optional)		Built-in computer, Harmonic analysis

(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)

METERTEST   MeterTest Sp. z o.o. | Lukasinskiego St. 26 b. 21, 58-100, Swidnica, Poland

meter-test-equipment.com   +48 74 856 63 92   sales@metertest.eu