



Ratio Meter Calibrator DRTC-100

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The Ratio Meter Calibrator DRTC-100 is a highly accurate calibration system, used to fully calibrate all parameters of the single-phase and three-phase ratio meters used for transformer testing.

The Ratio Meter Calibrator DRTC-100 consists of four functional units:

- Main Operator Panel, used to control the DRTC-100
- Delay and Load Unit DRDL-100, to calibrate the phase shift meter and the voltage and current metering of the ratiometer. It creates an electronically controlled phase shift between input and output voltage and switches resistors to load the exciter voltage. The DRDL-100 is a single-phase system and operates on one phase at a time. It is mounted behind the Operator Panel.
- Vector Group Simulator DRVG-100, to test the vector group detection of the ratiometer. It contains a special three-phase transformer that is switched to create all possible three-phase and single-phase transformer vector groups.
- Divider Ratio Transformer DRRD-100, to calibrate the ratio metering circuit of the ratiometers. Up to three highly accurate ratio transformers are used to create an input/output voltage ratio of 0.8 – 50,000. The DRDL-100 is a single-phase system and operates on one phase at a time.

1 Technical Specifications

Dimensions: 53.5 x 38 x 40.5 cm (21 x 15 x 16 in)
Weight: 20kg (44lbs) approx.
Power Supply: 9V DC, 1.5A

1.1 Delay and Load Unit DRDL-100

Load

Resistors: 10 Ω , 20 Ω , 40 Ω , 50 Ω , 100 Ω , 200 Ω , 500 Ω , 1k Ω , 2k Ω , 5k Ω , 10k Ω , 20k Ω

Accuracy: 1%

Delay

Delay Range: 10 μ s – 30ms

Phase Shift : -360° – +360°

Resolution: 0.01 μ s, 0.0001°

Frequency: 40Hz – 500Hz

Accuracy 0.01°

Limits:

Input Voltage 150V

Input Current 0.5A

Input Power 10 VA

1.2 Vector Group Simulator DRVG-100

H-side Groups: D, Y, YN, Z, ZN

X-side Groups: d, y, yn, z, zn

Vector Shift all, in 60° steps

Limits:

Input Voltage 150V

Output Current 0.1A



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1.3 Divider Ratio Transformer DRRD-100

Ratios: 0.8, 1, 2, 5, 10, 20, 50, 100, 200, 500,
1000, 2000, 5000, 10000, 20000, 50000

Accuracy:

Ratio	Accuracy
0.8	0.0085%
1	0.0030%
2 – 10	0.0100%
20 – 100	0.0150%
200 - 1000	0.0220%
2000	0.0230%
4000	0.0250%
10000	0.0310%
20000	0.0330%
50000	0.0390%

no-load Current < 5mA

Limits:

Input Voltage 150V, (60Hz), 125V (50Hz)

Output Current 10 mA

panel. To protect the calibration settings, the calibration functionality is password protected.

3 Content of delivery

- One DRTC-100 Ratio Meter Calibrator in 19" rack, consisting of
 - DRTC-100 Main Operator Panel
 - DRDL-100 Delay and Load Tester (together with the DRTC-100 Main Panel)
 - DRVG-100 Vector Group Tester
 - DRRD-100 Ratio Meter Tester
 - Three-Phase Connection Panel
- One Power Supply 9V, 1.5A
- Operator's Manual
- Calibration Certificate

2 Operation Modes

The following Operation Modes are available. The operations are menu-driven via the operator panel.

2.1 Manual Mode

In Manual Mode, all functionality of the DRTC-100 can be controlled with the operator panel.

2.2 Semi-Automatic Mode

Ten automatic setups can be pre-programmed in the DRTC-100. The DRTC-100 will apply the pre-selected tests automatically. The operator only has to connect and operate the test object and confirm the test results (Pass/Fail) on the operator panel.

After the test finishes, the test protocol can be downloaded to a computer via the serial port.

2.3 Remote Operation

All functions of the DRTC-100 can be controlled remotely via the RS-232 serial interface.

2.4 System Calibration

Calibration of the DRTC-100 is supported via the operator