

Title: Calibration Of Metrohm Digital P-E Loop Testers

Scope Work Instruction for the internal calibration of Metrohm Digital P-E Loop Testers. To be used in the absence of a manufacturers calibration instruction.

Preparation

Calibration must be carried out using Category A Master instruments as required.

Equipment required;-

1.1 P-E Loop Tester Resistor Bank.

Method

2.1 All calibration results must be entered on Appendix A.

2.2 Carry out test 1.

2.3 Enter the actual value of test resistors (from the resistor bank calibration sheet) and the allowed limits in the appropriate column of the results sheet for tests 2 – 10. (Allowed limits to be: 2 decimal places 2 – 8; 1 decimal place 9 and 10; 2 decimal places 11 and 12; 1 decimal place 13).

2.4 Switch UUT to P/E1 range, use to measure basic P-E loop impedance and note reading for use in 2.5.

2.5 Carry out tests 2 – 10, using UUTs dedicated mains lead on sockets A to I (item 3.1.1). Note each result, subtract the basic loop impedance and enter in the results table observing the correct UUT decimal places.

2.6 Disconnect UUT mains lead and common up N and E to E pin in mains plug.

2.7 Enter actual value of the nominal 0.5ohm, 5 ohm, 100ohm test resistors and the allowed limits in the appropriate column of the results sheet.

2.8 Carry out tests 11 to 13 using UUTs mains lead on sockets B, E, H. Note each result, subtract basic loop impedance and enter in results table observing the correct UUT decimal places.

2.9 Restore UUT mains lead plug to correct configuration.

2.10 Complete the results sheet header and enter Pass / Fail.

- All records must be kept for audit purposes

References

Appendix A Calibration Results for Metrohm Digital P-E Loop Testers

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Appendix A

Calibration Results for Metrohm Digital P- E Loop Testers

ModelSerial No

DateResult

Lab Temp / RHOperator

User LocationCertificate No

Accuracies quoted are from the manufacturer's specification or relevant British Standard.

Test 1 Do "correct wiring" indicators operate correctly Pass / Fail

Calibration

UUT Accuracy: < 15ohm $\pm$ (2% Rdg + 1d); > 15ohm $\pm$ (2% Rdg)

Test No	UUT Range	UUT Indication	Actual Value	Allowed Limits	Result
2	P/E1				Pass / Fail
3	P/E1				Pass / Fail
4	P/E1				Pass / Fail
5	P/E1				Pass / Fail
6	P/E1				Pass / Fail
7	P/E1				Pass / Fail
8	P/E1				Pass / Fail
9	P/E1				Pass / Fail
10	P/E1				Pass / Fail
11	P/E1				Pass / Fail
12	P/E1				Pass / Fail
13	P/E1				Pass / Fail

The UUT was calibrated using the following equipment:

1. P-E Loop Tester Resistor Bank S/N _____

The uncertainty in the applied values is estimated not to exceed:

Resistance: $\pm$ 0.8%

The uncertainty limits quoted, which are derived from the arithmetic summation of the contributions, refer to the applied values only and do not relate to the stability of the UUT.