

Title: Calibration Of Robin KMP Series Digital PSC Loop Tester

Scope

Work Instruction for the internal calibration of Robin KMP Series Digital PSC Loop Tester. 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 Test Resistor Bank.
- 1.2 Special Loop Test Lead.
- 1.3 Fluke DMM.

Method

- 2.1 All calibration results must be entered on the results sheets (see appendix A).
- 2.2 Enter the actual value of the test resistors (from the resistor bank calibration sheet) and the allowed limits in the appropriate column of the results sheet. (Allowed limits to be 2 decimal places 2 – 8; 1 decimal place 9 and 10; 0 decimal place 11 and 12; 1 decimal place 13; 0 decimal place 14 and 15).
- 2.3 Use the UUT to measure the basic loop impedance and note the reading.
- 2.4 Carry out tests 1 to 11 using the UUT's dedicated mains lead on sockets A - I (item 1.1). Note each result, subtracting the basic loop impedance and enter in the results table observing the correct UUT decimal places.
- 2.5 Carry out test 12 using item 1.3, and then leave DMM connected showing the mains voltage, as this will be needed for tests 13, 14 and 15.
- 2.6 Replace the UUT mains lead with N & E common test lead and note the total loop impedance of sockets D & A.
- 2.7 Calculate the PSC actual values based on the following formulae:

$$\frac{\text{Actual Mains Voltage}}{\text{Socket Total Loop Impedance}} \times 0.84$$

Append the values for socket D & A in actual value column of the results table. Observing the correct UUT decimal places, enter the results of the PSC tests in the appropriate column. Note the socket D is to be used for test 13 and socket A for tests 14 and 15.

- 2.8 Complete the results sheet head and enter Pass / Fail.

- All records must be kept for audit purposes

References

Appendix A Calibration Results for Robin KMP Series Digital PSC Loop Tester

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Appendix A

Calibration Results for Robin KMP Series Digital PSC Loop Tester

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: Resistance $\pm (2\% \text{ Rdg} + 2d)$; Voltage $\pm (2\% \text{ Rdg} + 1d)$; PSC $\pm (10\% \text{ Rdg} + 2d)$

Test No	UUT Range	UUT Indication	Actual Value	Allowed Limits	Result
2	20 ohm				Pass / Fail
3	20 ohm				Pass / Fail
4	20 ohm				Pass / Fail
5	20 ohm				Pass / Fail
6	20 ohm				Pass / Fail
7	20 ohm				Pass / Fail
8	20 ohm				Pass / Fail
9	200 ohm				Pass / Fail
10	200 ohm				Pass / Fail
11	2000 ohm				Pass / Fail
12	Voltage AC				Pass / Fail
13	PSC 200A				Pass / Fail
14	PSC 2000A				Pass / Fail
15	PSC 20kA				Pass / Fail

The UUT was calibrated using the following equipment:

1. P-E Loop Test Resistor Bank S/N
2. Special Loop Test Lead S/N
3. Fluke DMM S/N

The uncertainty of measurement is estimated not to exceed:

Resistance: $\pm 0.8\%$ Voltage: $\pm 0.61\%$

The uncertainty limits quoted refer to the applied values only and do not relate to the stability of the UUT.