

INSTRUCTION MANUAL

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DIGITAL INSULATION-CONTINUITY TESTER

MODEL KMP
3010DL, 3050DL, 3075DL

ROBIN

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1. A Word About Safety

Electricity can cause severe injuries even with low voltages or currents.

Therefore it is extremely important that you read the following information before using this Insulation Tester.

- 1.1 This instrument must only be used by a competent trained person and in strict accordance with the instructions. Robin Electronics will not accept liability for any damage or injury caused by misuse or non-compliance with instructions or safety procedures.
- 1.2 This instrument must not be used on live circuits. Ensure all circuits are de-energised before testing.
- 1.3 Never open the instrument case except for battery or fuse replacement.
- 1.4 Always inspect your Insulation Tester and test leads before use for any sign of abnormality or damage. If any abnormal conditions exist (broken test leads, cracked case, display faulty, inconsistent reading - etc) do not attempt to take any measurements. Return to Robin Electronics for rectification.
- 1.5 Never replace the protective fuse inside the instrument with any other than the specified or approved equal (0.5A/600V) fast acting ceramic to IEC 127.
- 1.6 This meter has been designed with your safety in mind. However, no design can completely protect against incorrect use. Electrical circuits can be dangerous and/or lethal when a lack of caution or poor safety practice is used. Use caution in the presence of voltages above 50V as these pose a shock hazard.
- 1.7 Pay attention to cautions and warnings which will inform you of potentially dangerous procedures.
- 1.8 Model KMP3010DL has a live circuit warning bleeper. If it is connected to a live circuit a rapid pulsating bleep will be emitted. Do not press the test button and immediately disconnect the instrument from the circuit. Models KMP 3050DL and KMP 3075DL also have the same warning circuits but in addition, will display the value of external AC voltage along with a flashing symbol (⚡). The tone of the bleep will be lower if there are no batteries in the instrument.
- 1.9 Never assume an installation circuit is not live. Confirm it is de-energised before commencing testing.

- 1.10** Replace worn and/or damaged leads with new ones approved by Robin Electronics immediately.
- 1.11** It is essential to understand and follow the safety rules contained in this manual. They must always be observed when using the instrument.
- 1.12** If at anytime during testing there is a momentary degradation of reading, this may be due to excessive transients or discharges on the system or local area. Should this be observed, the test should be repeated to obtain a correct reading. If in doubt always contact Robin Electronics.
- 1.13** **Warning**
This product is an insulation/continuity tester and is designed for use on de-energised systems. It incorporates voltage warning circuits in case of accidental connection to an AC voltage. On no account should the product be used to measure voltage. Voltages should be measured with a dedicated voltage measuring instrument and it is recommended that fused test leads are always used for personal safety when measuring such voltages especially on high energy circuits.
- Note:** This product is supplied with SL20 unfused leads. These can be converted to fully fused types by attaching the optional SL40 fused module.
- 1.14** Users of this equipment and or their employers are reminded that Health and Safety Legislation require them to carry out valid risk assessments of all electrical work so as to identify potential sources of electrical danger and risk of electrical injury such as from inadvertent short circuit. Where the assessments show that the risk is significant then the use of fused test leads constructed in accordance with the HSE guidance note GS38 Electrical Test Equipment for use by Electricians should be used.
- 1.15** Always keep your hands and fingers behind finger guards on test leads used with this instrument. For safety reasons always use the accessories approved by Robin. The use of other accessories is prohibited as they may not have the same safety features built in.
- Note:** Always auto null your test leads in the Trac mode (Model KMP3075) and not the Lok mode.

2. Specifications

Insulation Resistance Measurement Specification

Test Voltage	KMP3050DL / KMP3075DL		
	KMP3010DL		
250V	500V	1000V	
Measuring Ranges	0 - 20M Ω 0 - 200M Ω 0 - 2000M Ω	0 - 20M Ω 0 - 200M Ω 0 - 2000M Ω	0 - 20M Ω 0 - 200M Ω 0 - 2000M Ω
Nominal Output Voltage (U _v)	250V dc min. at 0.25M Ω	500V dc min. at 0.5M Ω	1000V dc min. at 1M Ω
Nominal Output Current (I _n)	1mA dc min. at 0.25M Ω	1mA dc min. at 0.5M Ω	1mA dc min. at 1M Ω
Intrinsic accuracy	20 M Ω 200 M Ω	$\pm(1.5\% \text{rdg} + 5\text{dgt})$	
	2000 M Ω	0 to 1G Ω 1G to 2G Ω	$\pm(10\% \text{rdg} + 3\text{dgt})$ $\pm(3\% \text{rdg} + 3\text{dgt})$

Continuity Resistance Measurement Specification

Measuring Ranges	0 - 20 Ω	0 - 200 Ω	0 - 2000 Ω
Open circuit voltage (U _q) on the 20 Ω range	4 - 9V		
Nominal output current (I _n) on the 20 Ω range	200mA		
Intrinsic accuracy	$\pm(1.5\% \text{rdg} + 5\text{dgt})$	$\pm(1.5\% \text{rdg} + 3\text{dgt})$	

Reference Conditions

- Ambient Temperature: 23 \pm 5 $^{\circ}$ C
- Relative Humidity: 60 \pm 15%
- Supply Voltage: 9V
- Altitude: Less than 2000m

Insulation Resistance Operating Error

Range	Operating Range Compliant with EN 61557-2 Operating Error
20M Ω	0.2M Ω ~ 20M Ω
200M Ω	2M Ω ~ 200M Ω
2000M Ω	20M Ω ~ 1000M Ω

Continuity Resistance Operating Error

Range	Operating Range Compliant with EN 61557-4 Operating Error
20 Ω	0.2 Ω ~ 20 Ω
200 Ω	10 Ω ~ 200 Ω
2000 Ω	100 Ω ~ 2000 Ω

The influencing variations used for calculating the Operating Error are:

- Operating Temperature: 0°C to 40°C
- Relative Humidity: 85% maximum
- Supply Voltage: 7V to 9V

General Specification

- Storage Temperature: -10°C to 50°C
- Power Supply: 6 X 1.5 V batteries type R6 or equivalent
- Fuse (user replaceable): 500mA/600V fast acting ceramic
- Weight (minus batteries): KMP3010DL: 530 g
KMP3050DL: 538 g
KMP3075DL: 566 g

- Possible number of operations during battery life:
When the following resistance is connected to a measuring terminal alternating between 5seconds loading and intervals of 25seconds, the number of measurements that it is possible to make, until the battery voltage falls 7.0V shall be:

250V Range 0.25M Ω
approx.1200 times or more

500V Range 0.5M Ω
approx.1200 times or more

1000V Range 1M Ω
approx.400 times or more

20 Ω Range 1 Ω
approx.300 times or more

Applied Standards

- Operation: EN 61557-1/2/4
- Safety: EN61010 Cat.III 300V
- Protection: IEC60529 (IP40)

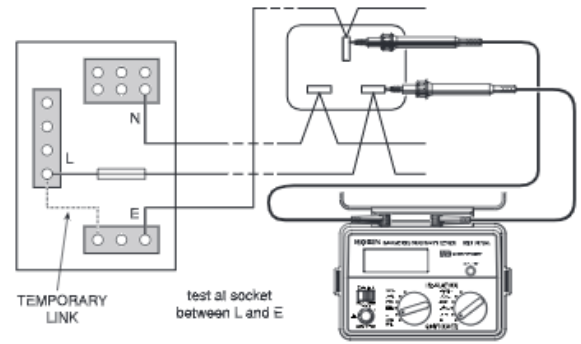
Accessories

- SL20 Snap-Lok Test Leads
- Test Leads Pouch

3. Features and Principles of Measurement

3.1 Features

- 3 1/2 Digit Microprocessor Controlled Insulation Tester
- Three Insulation test voltages 250V, 500V, 1000V (models KMP 3075DL, KMP 3050DL)
- Three continuity ranges, 20Ω, 200Ω and 2000Ω
- Trac-Lok and Backlight (Model KMP 3075DL)
- Three insulation resistance ranges 20MΩ, 200MΩ, 2000MΩ
- 200mA continuity short circuit test current
- 1mA test current at the minimum load on insulation ranges
- Bar graph indicates test voltage-rise and decay can be observed during insulation tests (Models KMP 3075DL and KMP 3050DL only)
- Warning of external voltage presence
- "Press to test" button with lock down feature
Releasing the test button automatically discharges the capacitance of a circuit under test
- Auto null feature (Models KMP 3075DL and KMP 3050DL only)

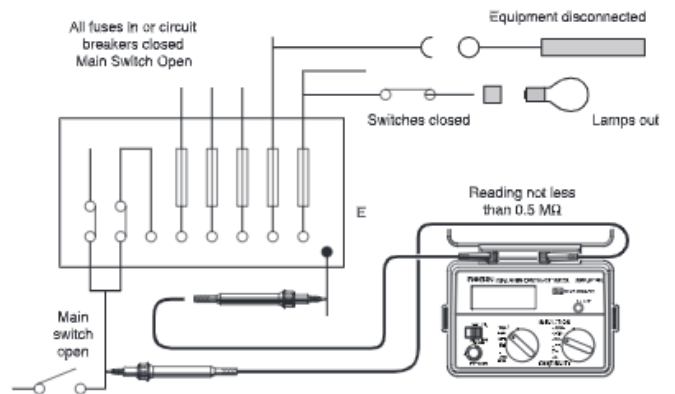


Typical arrangement for measuring the continuity of protective conductors. Before proceeding with tests conductors must be proved to be de-energised.

As an insulation tester the instrument is used to measure high values of resistance and hence the electrical quality of the insulating material within the circuit. Section 9 describes in more detail insulation measurement principles and potential sources of error.

3.2 Principles of Measurement

An Insulation/Continuity Tester performs two basic functions. As a continuity tester the instrument can be used to measure low values of resistance between two points in an electrical circuit. In this mode the instrument acts as a low voltage current source. The resistance is calculated from the measurement of the voltage and current. Careful connection to the circuit under test is essential to avoid measurement errors. Circuits connected in parallel may also effect the accuracy of the measurement.



Note: Insulation testing must only be undertaken on de-energised circuits.