Time Electronics
5030B Electrical Tester Calibrator Module

Description

A precision module designed to calibrate RCD, loop, insulation, earth testers and multifunction installation testers. The 5030B accurately simulates RCD trip times and measures currents produced by RCD testers. It replicates loop impedance and auto adjusts for local line impedance. It also provides insulation resistances and measures test voltages and currents. User control is via the central navigation keypad. Scrolling though menus and settings is intuitive and easy, with measurements and settings shown on the large clear LCD display.

Regional test sockets and fault detection: For loop and RCD tests the electrical tester (device under test) connects directly to the dedicated front panel mains socket. The 5030 can be fitted with a number of regional type sockets (specified on order). In these test conditions, if the device under test is faulty, the 5030B auto detects the fault, disconnects the output and warns the user. The 5030 is designed not to trip any RCDs on the local supply.

Loop impedance with auto local loop measurement: With 10 measurement points the 5030 covers a wide range of loop testers. The precision resistors that make up the loop calibration function are high power and capable of withstanding up to 30 A. An accurate automatic measurement of the local loop is made by the 5030B and added to the resistor value to give the loop impedance value, allowing for precise loop impedance calibration.

Precise RCD trip times: RCD trips can be simulated from 10 to 2000 ms in duration. The trip time can be set to predefined values for quick selection, or to a user time via the front panel.

RCD current measurements: Current measurement is made of the applied RCD test current. Current measurements are true RMS for AC, half wave rectified as well as being able to measure DC tests. The ranges covered are from 6 mA to 1000 mA, with multipliers of x0.5, x1, x2, and x5 up to a maximum of 2500 mA. To avoid false current measurements the 5030B incorporates a 'pre-test delay' setting. This feature is for use with RCD testers that produce a pre-test signal. A test current threshold setting (0 to 100 % of nominal current) is also user selectable.

Insulation resistance and test voltage measurement: The 5030B tests the functions of megohm meters using precision high value resistors up to 2 GΩ. Resistance value can be set via front panel or via remote control to allow many test points to be automated. Voltage measurement functions allow accurate test voltages up to 1 kV to be measured whilst under 0.5 mA or 1 mA test conditions.

Continuity and earth resistance: The 5030B precision low ohm resistors allow calibration of continuity functions found on most multifunction testers and insulation testers. Applied test voltages and currents are also measured.

Mains voltage and frequency: The local mains supply voltage and frequency is precisely measured by the 5030B. This is used to cross reference the voltage reading on the unit under test and confirm the instruments accuracy.

Features

- RCD 3 mA to 2500 mA, 10 ms to 2000 ms
- Loop 50 mΩ to 1.8 kΩ
- Insulation up to 2 GΩ / 1 kV
- Continuity 0.1 Ω to 10 kΩ
- Regional test sockets
- Operation via CalBench control centre
- Fast and intuitive user interface
- EasyCal software compatible

EasyCal Calibration Software

The 5030B can be controlled via Time Electronics EasyCal software to automate the calibration process. This provides increased speed of calibration and consistency of results

Produce traceable calibration certificates and test reports for quality standards with additional uncertainty information for ISO 17025 conformance.

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Technical Specifications

Loop

Function	Range / Values	Resolution	Accuracy
Loop Impedance Resistor Values	1800, 330.0, 180.0, 33.00, 18.00, 3.300, 1.800, 0.330, 0.150, 0.050 Ω	4 digit	± 0.5% of displayed value ± 30 mΩ
Local Loop Compensation	0 to 9.999 Ω	0.001 Ω	± 0.5% of value ± 30 mΩ
Test Current	30 A max (200 ms) / 50 W max	–	–

RCD

Function	Range / Values	Resolution	Accuracy
Trip Time	10 to 2000 ms	10 ms	±0.5 ms
Current	6.000, 10.00, 30.00, 100.0, 300.0, 500.0, 1000 mA	4 digit	± 0.5 % of reading ± 1 % with x5 multiplier
Current Multipliers	x0.5, x1, x2, x5	–	–
Maximum Current	2500 mA	–	–
Waveforms	AC, DC & half wave rectified	–	–
Phase Detection	0° or 180°	–	–
Pre Trigger Delay	0 to 2000 ms	10 ms	–
Pre Trigger Threshold	0 to 100 % of nominal current	1 %	–

Insulation

Function	Range / Values	Resolution	Accuracy
Resistance	1 MΩ to 2000 MΩ	1 MΩ	1 % of value
	50 kΩ to 1990 kΩ	50 kΩ	1 % of value
Test Voltage Measurement @ 0.5 mA or 1.0 mA Load	50.0 to 99.9 V DC	0.1 V	1 % of reading
	100 to 1200 V DC	1 V	1 % of reading

Continuity

Function	Range / Values	Resolution	Accuracy
Resistance	0.1 Ω to 100.0 Ω	0.1 Ω	1 % of value + 20 mΩ
	250 Ω, 500 Ω, 1.00 kΩ, 2.50 kΩ, 5.00 kΩ & 10.0 kΩ	3 digit	1 % of value
Test Voltage Measurement (input resistance 10 MΩ)	0.0 to 50.0 V DC	0.01 V	0.5 % of range
Test Current Measurement (between 1 Ω and 2 Ω)	0 to 400 mA DC	0.1 mA	0.5 % of range
Power Dissipation	1 watt maximum	–	–

Voltage

Function	Range	Resolution	Accuracy
Line Voltage Measurement	200.0 to 260.0 V RMS	0.1 V	0.5 % of reading
Line Frequency Measurement	45.00 to 65.00 Hz	0.01 Hz	0.1 % of reading

General Specifications

Warm up ..... 30 minutes to full accuracy.

Settling time ..... Less than 5 seconds.

Standard interfaces ..... RS-232/USB (internal to console if control centre).

Temperature performance ..... Operating: 10 to 35 °C, Full spec: 23 °C ± 5 °C, Storage: -10 °C to 50 °C.

Operating humidity/altitude ..... < 80 % non condensing / Altitude: 0 to 3 km. Non operating altitude: 3 km to 12 km.

Line power ..... As per ordered CalBench. 220 to 240 V AC 50 Hz. Power consumption 200 W max.

Module width ..... 305 mm (primary or secondary console fitting)

Options ..... Calibration certificates, EasyCal software

Ordering Information

5030B ..... **Electrical Tester Calibrator Module**

C201 ..... Traceable calibration certificate (Factory)

C137 ..... Accredited calibration certificate (ISO 17025)

ECFLA ..... EasyCal Software (see separate datasheet for options)

Due to continuous development Time Electronics reserves the right to change specifications without prior notice.

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03/20