Time Electronics
5051Plus Multifunction Calibration System

- **Integral Calibrator, DMM, and PC**
- *Source up to 1050V AC/DC voltage*
- **Source up to 22A AC/DC current**
- *Source up to 1GΩ resistance*
- **Thermocouple simulate and measure**
- *PT100 simulate and measure*
- **Source capacitance and inductance**
- *Oscilloscope calibration*
- **Clamp meter adaptor included**
- *EasyCal calibration software included*

DESCRIPTION

The 5051Plus combines a precision multifunction calibrator, 6½ digit multimeter, and industrial touch screen PC. Offering high performance calibration and maximum functionality, it provides the foundation for an efficient calibration program. By integrating the calibrator, DMM and PC in one unit minimal bench space is used in the laboratory. This is also beneficial for field calibration work as the 5051Plus replaces the need for transporting several instruments.

Calibrator

The standard unit is fitted with AC/DC voltage to 1050V, AC/DC current to 22A, variable resistance to 120MΩ (with 1GΩ fixed value), capacitance and inductance, conductance, thermocouple simulation and oscilloscope calibration. Also supplied is a clamp meter adaptor for clamp calibration up to 1100A, and test lead set to provide the neccessary connections for nearly all applications. Further enhancements can be made by adaptors, and accompanying benchtop instruments. Both manual control and EasyCal software control is available.

Digital Multimeter

The internal 6½ digit multimeter measures DC voltages to 1000V, AC voltages to 750V, resistance to 100MΩ, and frequency to 300kHz. Operation can be performed using the manual control programs or EasyCal software.
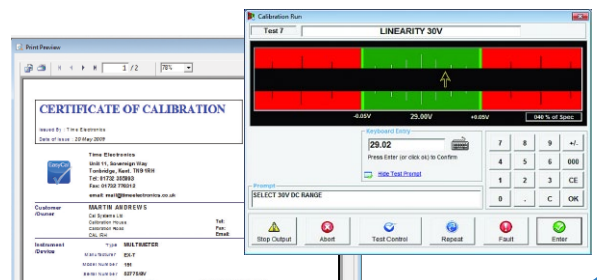
Touch Screen PC

The operating system is Windows XP embedded, running on a 2GHz PC which allows standard peripherals to be connected. The calibrator and DMM control programs allows the wide range of functions to be easily selected using mouse, keyboard, or touch screen. As a complete workstation the 5051Plus is supplied with printer and connectivity kit for producing certificates, reports, and labels.

MULTI INSTRUMENT CALIBRATION

The 5051Plus can calibrate digital and analogue multimeters, frequency meters, ohm meters, AC/DC millivoltmeters, decade boxes, thermocouple indicators and sensors, clamp meters, oscilloscopes, timer counters, RTDs and much more. Accompanying instruments and adaptors can be added for power supplies, pressure devices, and more.

EASYCAL CALIBRATION SOFTWARE

The 5051Plus comes pre-loaded with Time Electronics' EasyCal software. Automate the calibration process and increase speed of calibration and consistency of results. Easily produce calibration certificates and reports to ISO 9001, ISO 17025, and other international quality standards. Data can be transferred to desktop PCs/servers using USB memory or connected to a LAN via the ethernet connection located on the rear of the unit.

5051Plus Specifications

Technical Specifications

Function	Range / Values	Best 1 year Specification
Calibrator (source)		
Voltage DC	0 to ± 1050V	± 15ppm of setting
Current DC	0 to ± 22A	± 80ppm of setting
Voltage AC – Wideband AC Voltage	1mV to 1050V (10Hz to 20kHz, sine-wave) 20 to 200mV/300kHz. 0.2 to 2V/1MHz. 2 to 20V/100kHz	± 300ppm of setting ± 0.05%
Current AC	10µA to 22A (20Hz to 1kHz, sine-wave)	± 0.05%
Clamp Meter Adaptor x50 turn	AC/DC Current up to 1100A (DC, 45 to 90Hz)	± 0.5%
Capacitance	1nF, 10nF, 100nF, 1µF, 10µF, 100µF (100V Max)	± 0.25%
Inductance	1mH, 1.9mH, 5mH, 10mH, 19mH, 50mH, 100mH, 190mH, 500mH, 1H, 10H	± 0.1%
Resistance	1Ω to 120MΩ Variable (plus 1GΩ fixed value)	± 100ppm of setting
Conductance	1s to 1ns (fixed values, decade steps)	± 20ppm of setting
Thermocouple Simulation	-270 to 1800°C (type J, K, R, T, S, B, E, N)	± 0.15°C
PT100 Simulation	-180 to 850°C	± 0.2°C
Oscilloscope Calibration		
Amplitude	0mV to 200V and 0mV to 2V 50Ω (Square-wave or DC)	± 0.05%
Frequency/Period	0.1Hz to 100MHz / 100ns to 10s	± 20ppm (± 0.1ppm with option 9783)
Duty Cycle	3 frequencies: 100Hz, 1kHz, 10kHz, settable from 0 to 100%	–
Fast-Rise	< 850ps. Bandwidth checking up to 400MHz	–
Option 9769: 2.2GHz Sweep	100MHz to 2.2GHz levelled sine-wave (0.5, 1, 1.5V pk-pk)	Amplitude ± 1%, Frequency ± 20ppm

6.5 Digit DMM (measure)

Function	Range / Values	Best 1 year Specification
Voltage DC	0 to 1000V	35ppm of rdg + 6ppm of rng
Current DC	0 to 3A	500ppm of rdg + 50ppm of rng
Voltage AC	0 to 750V	0.06% of rdg + 0.04% of rng
Current AC	0 to 3A	0.1% of rdg + 0.04% of rng
Resistance	0 to 100MΩ	100ppm of rdg + 50ppm of rng
Frequency	3Hz to 300kHz	0.01% of rdg
Thermocouple	-270 to 1800°C (Type J, K, R, T, S, B, E, N)	± 0.5°C
PT100	-180 to 850°C	± 0.08°C

PC Specifications/Details

Processor	2GHz
RAM	512MB
Hard Drive	60GB solid state
Ports	4 x USB, 1 x Fast Ethernet
Display	10.5" Touch Screen LCD
Operating System	Windows XP Embedded
Included Software Programs	Calibrator and DMM control programs, EasyCal calibration software suite
Supplied Hardware/Accessories	USB keyboard, Inkjet Printer, Cal and ID Label Printer, DVD-RW, 4 port USB hub, Numeric key pad, USB memory stick

Options

Oscilloscope Calibration Options	9769: Internal Scope 2.2GHz Levelled Sine Generator • 9783: Internal Oven-Controlled High Stability Frequency Reference 9762: External Rubidium High Stability Frequency Reference • 9764: External Current Probe Calibration Adaptor
External Adaptors/Instruments	9773: Optical Tacho Adaptor • 9790: 100 Amp AC Current Transformer • 9760: Power Amplifier (60V AC, 90V DC - 100mA) 7042: Remote Pressure Module (Vac to 20 bar versions) • 5077: Power Calibrator • 7070/7071/7072: Dry Block Calibrators 9758: DC Electronic Load (power supply calibration) • 9766: Low Noise Attenuator 1000:1 • 9767: Low Noise Attenuator 100:1
EasyCal Software Accessories and Calibration Certificates	9777: Bar Code Reader • 9779: Job and Address Label Printer • EC2FL/EC2CL/EC2WL: Additional User Licenses for separate PCs EAD: EasyAdmin Add-On • EWC: WebCerts Add-On • CREP: Crystal Reports Software • C134: UKAS Calibration Certificate

General Specifications

Supplied Items	5051PLUS Calibration System • Clamp Meter Adaptor • Premium Test lead Set • Soft Carry Case • Printer and Connectivity Kit Cal and ID Label Printer • 5051 Manual Control Software • EasyCal Calibration Software • Factory Calibration Certificate (NPL)
Warm up	30 minutes to full accuracy
Settling Time	Less than 5 seconds
Temperature Performance	Operating: 5 to 45°C. Calibration: 15 to 28°C. Storage: -10 to 50°C
Operating Humidity / Altitude	< 80% non condensing. Altitude: 0 to 3km. Non operating: 3km to 12km
Line Power	100 to 230V AC 50/60Hz. 200W maximum
Dimensions / Weight	W430mm, H202mm, D538mm. Weight: 23kg
Supplied Test Lead Set	High voltage (pair). High current (pair). Low thermal (pair). Shielded 4 wire. BNC test lead. BNC/thermocouple/spade adaptors. Test clips/couplers (pair). Wall mount lead holder. Carry case.

Full specifications are available on request. Due to continuous development Time Electronics reserves the right to change specifications without prior notice.

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