

# 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, decade resistance to 1GΩ, 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 necessary 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

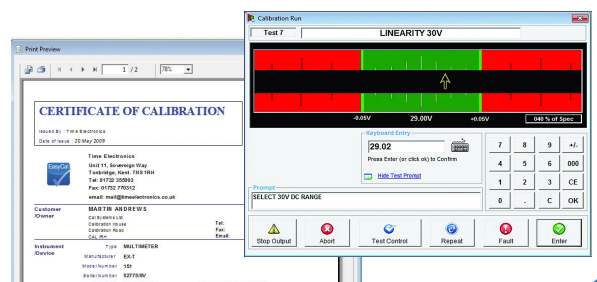
The 5051+ features an integral control centre that is a PC with a 64 bit dual core processor, running Windows 8.1. The calibrator and DMM control programs allows the wide range of functions to be easily selected using mouse, keyboard, or touch screen. As a complete workstation the 5051Plus is supplied with printer and connectivity kit for producing certificates and reports, as well as a label printer and barcode reader.

## MULTI INSTRUMENT CALIBRATION

The 5051Plus can calibrate multimeters, frequency meters, ohm meters, AC/DC millivoltmeters, decade boxes, thermocouple indicators and sensors, clamp meters, tacho 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
<b>Calibrator (source)</b>		
Voltage DC	0 to $\pm$ 1050V	$\pm$ 15ppm of setting
Current DC	0 to $\pm$ 22A	$\pm$ 80ppm of setting
Voltage AC	1mV to 1050V (10Hz to 1MHz, sine-wave)	$\pm$ 300ppm of setting
Current AC	10 $\mu$ A to 22A (20Hz to 1kHz, sine-wave)	$\pm$ 0.05%
Clamp Meter Adaptor x50 turn	AC/DC Current up to 1100A (DC, 45 to 90Hz)	$\pm$ 0.5%
Capacitance	1nF, 10nF, 100nF, 1 $\mu$ F, 10 $\mu$ F, 100 $\mu$ F (100V Max)	$\pm$ 0.25%
Inductance	1mH, 1.9mH, 5mH, 10mH, 19mH, 50mH, 100mH, 190mH, 500mH, 1H, 10H	$\pm$ 0.1%
Decade Resistance	1 $\Omega$ to 1G $\Omega$ (decade values)	$\pm$ 20ppm of setting
Full Range Resistance	1 $\Omega$ to 120M $\Omega$ (variable)	$\pm$ 100ppm of setting
Conductance	1s to 1ns (fixed values, decade steps)	$\pm$ 20ppm of setting
Thermocouple Simulation	-270 to 1820°C (type J, K, R, T, S, B, E, N)	$\pm$ 0.15°C
PT100 Simulation	-180 to 850°C	$\pm$ 0.07°C

<b>Oscilloscope Calibration</b>		
Amplitude	6mV to 200V and 6mV to 2V 50 $\Omega$ (Square-wave or DC)	$\pm$ 0.05%
Frequency/Period	0.1Hz to 100MHz / 10ns to 10s (fixed values 1, 2, 5 sequence)	$\pm$ 0.1ppm (0.1Hz to 10MHz / 100ns to 10s) $\pm$ 20ppm (20, 50, 100MHz / 50, 20, & 10ns)
Duty Cycle	3 frequencies: 100Hz, 1kHz, 10kHz, settable from 0 to 100%	-
Fast-Rise	< 400ps. Bandwidth checking up to 400MHz	-
<b>Option 9769:</b> Scope 2.2GHz Sweep	100MHz to 2.2GHz levelled sine-wave (0.5, 1, 1.5V pk-pk)	Amplitude $\pm$ 1%, Frequency $\pm$ 20ppm

<b>6.5 Digit DMM (measure)</b>		
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 100M $\Omega$	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)	$\pm$ 0.5°C
PT100	-180 to 850°C	$\pm$ 0.08°C

<b>PC Specifications/Details</b>	
Processor	64 bit, dual core (or equivalent)
RAM	4GB (or higher)
Hard Drive	60GB solid state
Ports	4 x USB, 1 x Fast Ethernet
Display	10.4" Touch Screen LCD
Operating System	Windows 8.1
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

<b>Options</b>	
Oscilloscope Calibration Options	9769: Internal Scope 2.2GHz Levelled Sine Generator • 9762: External Rubidium Frequency Reference • 9764: Current Probe Adaptor
External Adaptors/Instruments	9790: 100 Amp AC Current Transformer • 9760: Power Amplifier (60V AC, 90V DC - 100mA) • TEG Digital Pressure Gauges 5077: Power Calibrator • Dry Block Calibrators • 7074: Black Body Calibrator • 8029: Electronic Load
EasyCal Software Accessories and Calibration Certificates	9779: Job and Address Label Printer • EC2FL/EC2WL: Additional User Licenses for separate PCs EAD: EasyAdmin Add-On • EWC: WebCerts Add-On • CREP: Crystal Reports Software • C134: UKAS Calibration Certificate

<b>General Specifications</b>	
Supplied Items	5051PLUS Calibration System • Clamp Meter Adaptor • Optical Tacho Adaptor • Premium Test lead Set Soft Carry Case • Printer and Connectivity Kit • Cal and ID Label Printer • Bar Code Reader 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.