



- **Integral Calibrator, Multimeter, and PC**
- **0 to 22V AC/DC voltage**
- **0 to 220mA AC/DC current**
- **Source up to 1GΩ resistance**
- **10MHz frequency**
- **RTD simulation/measure**
- **Thermocouple simulation/measure**
- **High voltage/current option: 1kV/22A AC/DC**
- **Simulated resistance 10Ω to 40MΩ**
- **PT100 simulation**
- **Optional oscilloscope calibration**
- **Pressure calibration control software**
- **Touch screen operation**
- **EasyCal software installed as standard**

Calibrator / Multimeter / Touch Screen PC

Mounted centrally in the primary console the 7051 combines a precision multifunction calibrator, 6½ digit multimeter, and industrial touch screen PC. It is the principle module for on-site facilities that require high performance calibration and maximum functionality.

Calibrator (source): Provides a wide range of calibrated outputs for AC/DC voltage and current, RTD and thermocouple simulation, plus a range of resistance and frequency functions. Internal options can be added for increased capabilities. These include high voltage/current, capacitance/inductance, and oscilloscope calibration. Further enhancements can be made by additional side modules, adaptors, and benchtop instruments.

Multimeter (measure): The integral 6½ digit multimeter measures DC voltage to 1000V, AC voltage to 750V, resistance to 100MΩ, and frequency to 300kHz.

PC Control Centre: The 7051 control centre is a PC with a 64 bit dual core processor, running Windows 8.1, with a 10.4" capacitive touch screen display. An optional PC upgrade with 12.1" display is available. The calibrator control software allows the wide range of functions to be easily selected using mouse, keyboard, or touch screen.

EasyCal Software: Enables automatic calibration to increase speed and efficiency of work. In addition EasyCal has features to manage and administrate both inventory and quality control. To complement the system a printer and connectivity kit is supplied as standard, for generation of certificates and reports.

Communication: Using EasyCal the operator can read back from compatible electrical, temperature, pressure, and loop modules within the bench. EasyCal can also be used with external instruments such as dry block calibrators and portable test instruments.

7051Plus Package: A comprehensive package including specific options to cover the calibration requirements for electrical and process applications. As a package it incorporates the full internal capabilities of the 7051, and is complemented by external adaptors for increased functionality. It is suitable for rapid multi product testing with automated test runs using EasyCal software. Further supplied accessories include a bar code reader for quick identification of devices in EasyCal, and label printer for creating 'Calibrated' labels to be placed on instruments.



Standard Features

Calibrator (source)	Range	Best 1 year Specification
Voltage DC	0 to $\pm 22V$	± 15 ppm of setting
Current DC	0 to $\pm 220mA$	± 80 ppm of setting
Voltage AC	1mV to 22V (10Hz to 20kHz, sine-wave)	± 300 ppm of setting
Current AC	10 μA to 220mA (20Hz to 1kHz, sine-wave)	$\pm 0.05\%$ of setting
Decade Resistance	1 Ω to 1G Ω (Fixed values, decade steps)	± 20 ppm of setting
Simulated Resistance	10 Ω to 40M Ω	$\pm 0.02\%$ of setting
Conductance	1s to 1ns (Fixed values, decade steps)	± 20 ppm of setting
Thermocouple	-270 to 1820 $^{\circ}C$ (Type J, K, R, T, S, B, E, N)	$\pm 0.15^{\circ}C$
PT100 Simulation	-180 to 850 $^{\circ}C$	$\pm 0.15^{\circ}C$
Frequency/Period	0.1Hz to 10MHz / 100ns to 10S	± 20 ppm of setting

6.5 Digit Multimeter (measure)	Range	Best 1 year Specification
Voltage DC	0 to 1000V	35ppm of rdg + 6ppm of ng
Current DC	0 to 3A	500ppm of rdg + 50ppm of ng
Voltage AC	0 to 750V	0.06% of rdg + 0.04% of ng
Current AC	0 to 3A	0.1% of rdg + 0.04% of ng
Resistance	0 to 100M Ω	100ppm of rdg + 50ppm of ng
Frequency	3Hz to 300kHz	0.01% of rdg
Thermocouple	-270 to 1800 $^{\circ}C$ (Type J, K, R, T, S, B, E, N)	$\pm 0.5^{\circ}C$
PT100	-180 to 850 $^{\circ}C$	$\pm 0.08^{\circ}C$

Internal PC	Specification/Details
Processor	64 bit, dual core (or equivalent)
RAM	4GB (or higher)
Hard Drive	60 GB Solid State (or higher)
Ports	Front: 4 x USB / Rear of Console: 2 x USB, 2 x RS-232
Display	10.4" LCD, (Touch Screen)
Operating System	Windows 8.1
Pre loaded Software Programs	EasyCal Calibration Software
Upgrade Option	CC12A: Upgraded integral PC (16GB RAM, 120GB hard drive) and 12.1" touch screen
Supplied Hardware/Accessories	USB keyboard, Printer, DVD-RW, 4 port USB hub, Numeric key pad, USB Stick

Options (* denotes options that are included in the 7051Plus package)

Calibrator (internal)	Range/Values	Best 1 year Specification
High Voltage/Current (9782*)	220mA to 22A / 22V to 1050V AC/DC	DCI 250ppm. DCV 50ppm. ACI 0.2%. ACV 0.08%
Wideband AC Voltage (9771*)	20 to 200mV/300kHz. 0.2 to 2V/1MHz. 2 to 20V/100kHz	$\pm 0.05\%$ of setting
Capacitance (9798*)	1nF, 10nF, 100nF, 1 μF , 10 μF , 100 μF	$\pm 0.25\%$ of setting
Inductance (9798*)	1mH, 1.9mH, 5mH, 10mH, 19mH, 50mH, 100mH, 190mH, 500mH, 1H, 10H	$\pm 0.1\%$ of setting
Full Range Resistance (9787*)	1 Ω to 120M Ω (Variable)	± 100 ppm of setting
- PT100	-180 to 850 $^{\circ}C$	$\pm 0.07^{\circ}C$
Oscilloscope Calibration (9770*)		
- Amplitude	6mV to 200V and 6mV to 2V 50 Ω (square-wave or DC)	$\pm 0.05\%$
- Frequency/Period	0.1Hz to 100MHz / 10ns to 10s	± 20 ppm
- Duty Cycle	3 frequencies: 100Hz, 1kHz, 10kHz, settable from 0 to 100%	
- Fast-Rise	< 400ps. Bandwidth checking up to 400MHz	
Frequency Reference (9783*)	0.1Hz to 10MHz / 100ns to 10s	± 0.1 ppm
Scope 2.2GHz Sweep (9769)	100MHz to 2.2GHz levelled sine-wave (0.5, 1, 1.5V pk-pk)	Amplitude $\pm 1\%$, Frequency ± 20 ppm

Adaptors and Accompanying Bench Instruments (see page 7 for further details)

External Adaptors	Clamp meter adaptor (9780*), tacho adaptor (9773*)
External Instruments	Current transformers, bench/portable calibrators, attenuators, references
EasyCal Accessories	Bar code reader (9777*), Calibration & ID label printer (9778*), Job & address label printer (9779)



7051 General Specification

Warm up.....	30 minutes to full accuracy
Settling Time.....	Less than 5 seconds
Interfaces.....	Front: 4 x USB / Rear of Console: 2 x USB, 2 x RS-232
Temperature Performance.....	Operating: 5 to 45°C. Full Spec: 22°C +/- 3°C. Storage: -10°C to 50°C
Operating Humidity/Altitude.....	<80% non condensing. Altitude: 0 to 3km. Non operating: 3km to 12km
Line Power.....	100 to 230V AC 50/60 Hz. 200W maximum
Dimensions.....	w425mm, h201mm (primary console fitting only)

7051 Ordering Information

7051 Multifunction Calibrator and Control Centre - Features and included items

- Precision Multifunction Calibrator
- AC/DC 22V / 220mA
- Decade Resistance 1Ω to 1GΩ
- Simulated Resistance 10Ω to 40MΩ
- PT100 Simulation (-180°C to 850°C)
- Thermocouple Simulation (J,K,R,T,S,B,E,N)
- 10MHz Frequency
- Internal Multimeter – 6.5 Digit (AC/DC 1kV/3A, 100MΩ, 300kHz)
- Internal PC – 10.4" colour LCD touch screen
- 7051 Calibrator/Multimeter Control software
- EasyCal Calibration Software (Full License)
- Printer and Connectivity kit
- Premium Test Lead Set
- User Manuals

7051Plus Package - For Comprehensive Electrical and Process Calibration

Includes all of the features and items listed above with selected options (*) shown below for maximum multi product calibration capabilities.

Internal Options

9782*	High Voltage/Current option AC/DC 1kV/22A (Multimeter Calibration)
9798*	Capacitance (1000pF to 100μF) / Inductance (1mH to 10H)
9787*	Full Range Resistance (1Ω to 120MΩ) including advanced PT100 simulation
9771*	Wideband AC Voltage (1MHz Max. 20mV to 20V)
9770*	Oscilloscope Calibration (1mV to 200V, 0.1Hz to 100MHz, bandwidth check to 400MHz)
9783*	Frequency Reference for timer/counter calibration (9770 option must also be fitted)
9769	Scope 2.2GHz Levelled Sine Generator
CC12A	7051 Control Centre Upgrade to CC12 PC with 12.1" touch screen

External Options

9762	Rubidium High Stability Frequency Reference (9770 scope calibration option must fitted)
9773*	Optical Tacho Adaptor
9780*	Clamp Meter Adaptor (1 and 50 turn coil)
9764	Current Probe Calibration Adaptor (oscilloscope calibration option must fitted)
9790	100 Amp AC Current Transformer
5077	Power Calibration (0 to 20kW AC and DC) - External Calibrator
9760	Power Amplifier (60V AC, 90V DC – 100mA)
9766	External Low Noise Attenuator 1000:1
9767	External Low Noise Attenuator 100:1
TE-TRQ	Torque Wrench Calibration Unit (module or benchtop with external transducers)
C165*	Factory Calibration Certificate (NPL traceable)
C134	UKAS Calibration Certificate (ISO 17025)

EasyCal Options

9777*	Bar Code Reader
9778*	Calibration and ID Label Printer
9779	Job and Address Label Printer
EC2FL	Additional Users License - For use on separate PC's
EAD5	EasyAdmin security add-on: Set user rights, access levels, and more (5 users)
EWC	WebCerts add-on: Online application for upload and retrieval of certificates and reports

* These options are included in the 7051Plus package.

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