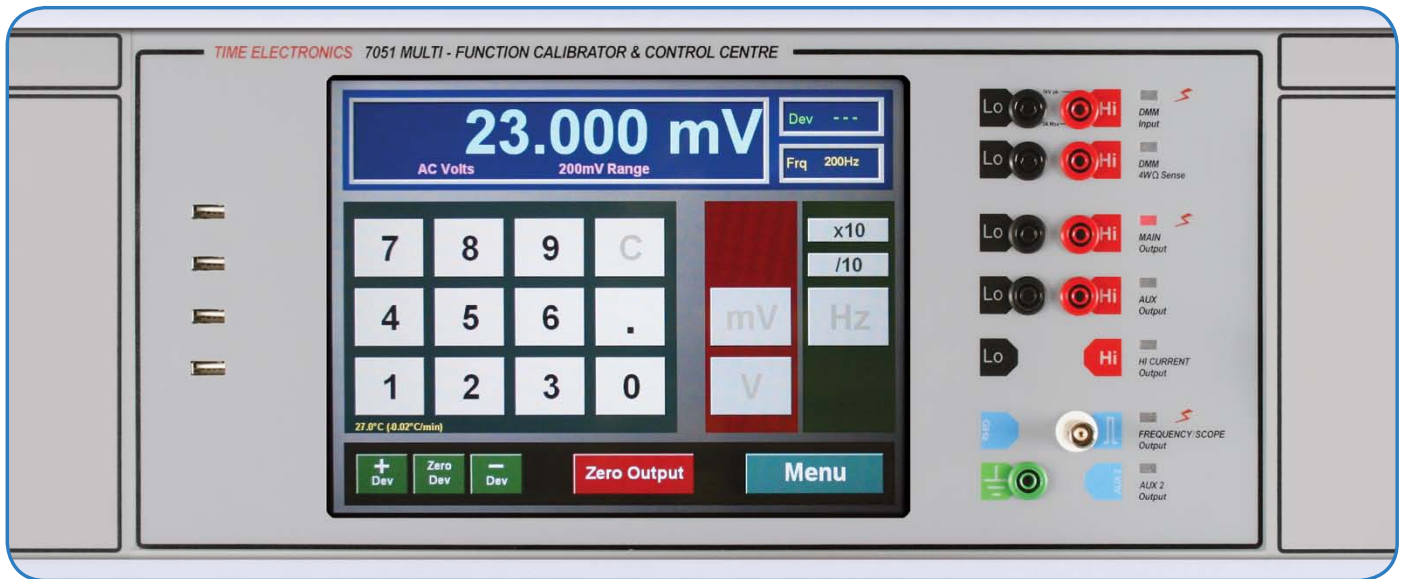




Time Electronics

7051 Multifunction Calibration System



- **Integral Calibrator, DMM, 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**

Calibrator / DMM / 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: Provides a wide range of calibrated outputs for AC/DC voltage and AC/DC current, plus a range of resistance and frequency functions. Internal options can be added for increased capabilities. These include PT100 simulation, high voltage/current, capacitance/inductance, and oscilloscope calibration. Further enhancements can be made by additional side modules, adaptors, and benchtop instruments.

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

PC: The operating system is Windows XP embedded, running on a 2GHz PC which allows standard peripherals to be connected. 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 users in need of rapid multi product testing with automated test runs using EasyCal software. The package includes clamp meter adaptor, tacho adaptor, and accessories to aid the calibration process, such as printers and a bar code reader for instrument identification.



Standard Features

Calibrator (source)	Range	Best 1 year Specification
Voltage DC	0 to \pm 22V	\pm 15ppm of setting
Current DC	0 to \pm 220mA	\pm 80ppm of setting
Voltage AC	1mV to 22V (10Hz to 20kHz, sine-wave)	\pm 300ppm of setting
Current AC	10 μ A to 220mA (20Hz to 1kHz, sine-wave)	\pm 0.05% of setting
Decade Resistance	1 Ω to 1G Ω (Fixed values, decade steps)	\pm 20ppm of setting
Simulated Resistance	10 Ω to 40M Ω	\pm 0.02% of setting
Conductance	1s to 1ns (Fixed values, decade steps)	\pm 20ppm of setting
Thermocouple	-270 to 1800°C (Type J, K, R, T, S, B, E, N)	\pm 0.15°C
PT100 Simulation	-180 to 850°C	\pm 0.2°C
Frequency/Period	0.1Hz to 10MHz / 100ns to 10S	\pm 20ppm of setting

6.5 Digit Multimeter (measure)	Range	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 100M Ω	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

Internal PC	Specification/Details
Processor	2GHz
RAM	512MB
Hard Drive	60GB
Ports	4 x USB, 1 x Fast Ethernet
Display	10.5" LCD, (Touch Screen)
Operating System	Windows XP Embedded
Pre loaded Software Programs	EasyCal Calibration Software
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 μ F, 10 μ F, 100 μ F	\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)	\pm 100ppm of setting
- PT100	-180 to 850°C	\pm 0.2°C
Oscilloscope Calibration (9770*)		
- Amplitude	0mV to 200V and 0mV to 2V 50 Ω (square-wave or DC)	\pm 0.05%
- Frequency/Period	0.1Hz to 100MHz / 100ns to 10s	\pm 20ppm (\pm 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	
2.2GHz Sweep (9769)	100MHz to 2.2GHz levelled sine-wave (0.5, 1, 1.5V pk-pk)	Amplitude \pm 1%, Frequency \pm 20ppm

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

10 Channel Scanner Module (9714B)	Option for internal DMM. Allows multiple inputs to be measured
External Adaptors	Clamp meter adaptor (9780*), tacho adaptor (9773*), torque wrench calibration adaptor (9759)
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 Specifications

Warm up.....	30 minutes to full accuracy
Settling Time.....	Less than 5 seconds
Interfaces.....	4 x USB, 1 x Fast Ethernet
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 DMM – 6.5 Digit (AC/DC 1kV/3A, 100MΩ, 300kHz)
- Internal PC – 10.5" colour LCD/touch screen
- 7051 Calibrator/DMM 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 PT100 simulation
9771*	Wideband AC Voltage (1MHz Max. 20mV to 20V)
9770*	Oscilloscope Calibration (1mV to 200V, 0.1Hz to 100MHz, < 850ps risetime)
9769	Scope 2.2GHz Levelled Sine Generator
9783*	Oven-Controlled High Stability Frequency Reference (scope options only)
9714B	10 Channel Scanner Side Module (option for internal DMM)

External Options

9762	Rubidium High Stability Frequency Reference (oscilloscope calibration option must fitted)
9773*	Optical Tacho Adaptor
9780*	Clamp Meter Adaptor (1 and 50 turn coil)
9759	Torque Wrench Calibration Adaptor
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
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.