



# Time Electronics

## 5025C Multifunction Calibrator



- 0 to 1050V AC/DC voltage
- 0 to 22A AC/DC current
- 1Ω to 1GΩ resistance
- Thermocouple and PT100 simulation
- Digital frequency
- Capacitance
- Optional scope and power calibration
- Optional clamp meter calibration
- RS-232/USB/GPIB interfaces
- PC Virtual Control Software included
- Supplied with test lead set

### HIGH PERFORMANCE CALIBRATION

A precision multi-product calibrator designed to rapidly calibrate a wide range of test & measurement instruments. With over 11 standard functions the 5025C can accurately test and verify both traditional and new test equipment. It is ideal for companies requiring a calibrator that delivers high performance over wide conditions, with excellent capabilities, functionality, and features for ease of use.

The 5025C is fitted with AC/DC voltage to 1050V, AC/DC current to 22A, digital frequency to 10MHz, decade resistance to 1GΩ, simulated variable resistance from 10Ω to 40kΩ, conductance, capacitance, thermocouple and PT100 simulation.

An optional enhanced performance pack enables advanced calibration for up to 6.5 digit multimeters. It provides full range variable resistance to 120MΩ, extended temperature functions, extended capacitance, inductance, additional precision high DCV ranges and increased ACV frequency bandwidth. Also available are oscilloscope and power calibration options.

External adaptors are available for clamp meter calibration (up to 1100A) and optical tachometer calibration. Also available is a power amplifier which increases the 5025C's AC/DC voltage output drive capabilities to 100mA. This addition allows even the most demanding analogue instruments to be tested.

### WIDE WORKLOAD COVERAGE

The 5025C can calibrate various instruments and devices; bench and handheld multimeters, frequency meters, ohm meters, AC/DC millivoltmeters, thermocouple and PT100 meters, clamp meters, and many other measurement devices. By adding internal options the 5025C can calibrate oscilloscopes, timer/counters, power meters and more.

### SIMPLE OPERATION

Functions and ranges are easily accessed from the front panel. Increase and decrease keys per digit, are used to quickly set the output value. Deviation control then enables the user to finely adjust the output value as a percentage (+/- 9.999%). All this information is shown on a clear, easy to read LED display.

### VIRTUAL CONTROL SOFTWARE

The 5025C is supplied as standard with Time Electronics' windows based Virtual Control Software. It allows quick and direct input of any value required. The remote SCPI command is displayed to help users develop custom applications.



### EASYCAL SOFTWARE

Connect the 5025C to a PC/Laptop (via RS-232, USB or GPIB) installed with Time Electronics' EasyCal software and automate the calibration process. This provides increased speed of calibration and consistency of results.

Produce calibration certificates and reports to ISO 9001, ISO 17025, and other international quality standards.



# 5025C Specifications

## Technical Specifications

Function	Range / Values	Best 1 year Specification
Voltage DC	0 to $\pm$ 1050V	$\pm$ 15ppm of setting
Current DC	0 to $\pm$ 22A 1100A with clamp meter adaptor (option 9780)	$\pm$ 60ppm of setting
Voltage AC	1mV to 1050V (20Hz to 100kHz sine-wave)	$\pm$ 200ppm of setting
Current AC	10 $\mu$ A to 22A (20Hz to 5kHz sine-wave) 100A with current transformer (option 9790) 1100A with clamp meter adaptor (option 9780)	$\pm$ 0.05% of setting
Thermocouple Simulation	-210 to 1820°C. Type J, K, R, T, S, B, E, N	$\pm$ 0.05°C
Digital Frequency/Period	0.1Hz to 10MHz / 100ns to 10s	$\pm$ 20ppm of setting
Conductance	1s to 1ns (decade values)	$\pm$ 20ppm of setting
Decade Resistance	1 $\Omega$ to 1G $\Omega$ (decade values)	$\pm$ 20ppm of setting
Simulated Resistance	10 $\Omega$ to 40M $\Omega$ (variable)	$\pm$ 0.02% of setting
PT100 Simulation	-180°C to 850°C	$\pm$ 0.2°C
Capacitance	1nF, 10nF, 20nF, 50nF, 100nF, 200nF, 500nF, 1 $\mu$ F	$\pm$ 0.25% of setting
<b>Option 9780:</b> Clamp Meter Adaptor	AC/DC Current up to 1100A (DC, 45 to 90Hz)	$\pm$ 0.5%
<b>Option 9770: Oscilloscope Calibration</b>		
Amplitude	2mV to 200V and 1mV 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)	$\pm$ 20ppm
Duty Cycle	3 frequencies: 100Hz, 1kHz, 10kHz, settable from 0 to 100%	-
Fast-Rise	< 400ps. Bandwidth checking up to 400MHz	-
<b>Option 9783:</b> Frequency Reference	0.1Hz to 10MHz enhanced frequency accuracy reference	$\pm$ 0.1ppm (enhanced accuracy for timer/counters)
<b>Option 9769:</b> 2.2GHz Sweep	50MHz to 2.2GHz levelled sine-wave (0.5, 1, 1.5V pk-pk)	Amplitude $\pm$ 1%, Frequency $\pm$ 20ppm
<b>Option 9797: Power Calibration</b>		
Power	22A, 1050V, 23kW, 45 to 400Hz	ACV: 0.03%, DCV: 0.01%. ACI: 0.1%, DCI: 0.03%
Phase/Power Factor	$\pm$ 90°/ 0.00 to 1.00PF	$\pm$ 0.3°
<b>Option 9701: Enhanced Performance Pack</b> <small>(added values/types shown in bold where applicable)</small>		
Full Range Resistance	1 $\Omega$ to 120M $\Omega$ (variable)	$\pm$ 100ppm of setting
RTD Simulation	-180 to 850°C. Type PT100, <b>PT200, PT500, PT1000</b>	$\pm$ 0.03°C
Extended Thermocouple Simulation	-210 to 2315°C. Type J, K, R, T, S, B, E, N, <b>C, L, U</b>	$\pm$ 0.05°C
Extended Capacitance	1nF, 10nF, 20nF, 50nF, 100nF, 200nF, 500nF, 1 $\mu$ F, <b>10<math>\mu</math>F, 20<math>\mu</math>F, 50<math>\mu</math>F, 100<math>\mu</math>F</b>	$\pm$ 0.2% of setting
Extended AC Voltage Frequency	1mV to 200mV/300kHz, 200mV to 2V/1MHz	$\pm$ 0.05% of setting
Enhanced DC High Voltage	20 to 200V and 100 to 1020V additional ranges	$\pm$ 15ppm
Inductance	1mH, 1.9mH, 5mH, 10mH, 19mH, 50mH, 100mH, 190mH, 500mH, 1H, 10H	$\pm$ 0.1% of setting

## External Options

External Adaptors/Instruments	9780: Clamp Meter Adaptor (1 & 50 turn coil) • 9773: Optical Tacho Adaptor • 9790: 100 Amp AC Current Transformer 9760: Power Amplifier (60V AC, 90V DC - 100mA) • 9762: Rubidium High Stability Frequency Reference 9764: Current Probe Calibration Adaptor • 9766: Low Noise Attenuator (1000:1) • 9767: Low Noise Attenuator (100:1)
Accessories and Calibration Certificates	9085: Soft Carry Case • 9059: Hard Transit Case • 9728: 19" Universal Rack Mount Kit 9796: Premium Test Lead Set • C220: Factory Certificate (NPL traceable) • C225: UKAS Certificate (ISO 17025)
EasyCal Software	ECFLA: EasyCal Full License • 9777: Bar Code Reader • 9779: Job and Address Label Printer EC2FL/EC2WL: Additional User Licenses • EAD: EasyAdmin Add-On • EWC: WebCerts • CREP: Crystal Reports Software

## General Specifications

Supplied Accessories	Basic Test Lead Set • PC Virtual Control Software • RS-232 Cable • RS-232 to USB Adaptor • User Manual
Warm up	30 minutes to full accuracy
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
Interfaces	RS-232, USB and GPIB
Dimensions / Weight	w455mm, h155mm, d480mm. Weight: 16.5kg

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

# 5025C Ordering Information

Code	Description
5025C	Multifunction Calibrator (15ppm) AC/DC 1kV/22A. Decade Resistance to 1G ohm, Simulated Resistance 10 ohm to 40M ohm, Thermocouple Simulation (J,K,R,T,S,B,E,N), Conductance, PT100 Simulation, Capacitance, 10MHz Frequency, Basic Test Lead Set, Virtual Control Software.

## 5025C Internal Options

9701	5025C Enhanced Performance Pack Full range variable resistance, extended temperature functions, extended capacitance, inductance, additional precision high DCV ranges and increased ACV frequency bandwidth.
9797	Power Calibration (0 - 20KW AC and DC)
9770	Oscilloscope Calibration (1mV - 200V, 0.1Hz - 100MHz / Bandwidth checking to 400MHz)
9783	Oven-Controlled Frequency Reference (for timer/counters, increases accuracy to 0.1ppm from 0.1Hz to 10MHz). Option 9770 must be fitted.
9769	Oscilloscope Calibration 2.2GHz Levelled Sine Generator

## 5025C Adaptors, Accessories and Calibration Certificates

9762	Rubidium High Stability Frequency Reference (9770 internal scope option must be fitted)
9764	Current Probe Calibration Adaptor (9770 internal scope option must also be fitted)
9773	Optical Tacho Adaptor
9780	Clamp Meter Adaptor (1 & 50 turn coil)
9790	100 Amp AC Current Transformer
9760	Power Amplifier (60V AC, 90V DC - 100mA)
9766	External Low Noise Attenuator 1000:1
9767	External Low Noise Attenuator 100:1
9085	Soft Carry Case
9059	Hard Transit Case
9728	19" Universal Rack Mount Kit
9796	Premium Test Lead Set (basic test lead set supplied as standard)
C220	Factory Calibration Certificate (NPL traceable)
C225	UKAS Calibration Certificate (ISO 17025)
EW01	Extended Warranty - 3 years total covering parts and labour.

## EasyCal Software

### User Licenses

ECFLA	EasyCal Full License (discounted price when purchased with 5025C)
EC2FL	EasyCal Additional Full License (secondary user)
EC2WL	EasyCal Work Station License (full management/scheduling, no calibration run)

### EasyCal Accessories and PC Communication

9795	Printer and Connectivity Kit
9777	Bar Code Reader
9778	Cal and ID Label Printer
9779	Job and Address Label Printer
CREP	Crystal Reports Software: For detailed editing and formatting of certificate styles
9597	GPIB Cable
9743	PCI to GPIB Interface Card for PC

*For full listings of EasyCal software and options please see the EasyCal brochure for information.*

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