



Time Electronics 5025C Series 2 Multifunction Calibrator



Description

The 5025C Series 2 is a multifunction calibrator that provides a wide range of precision outputs for the calibration of electrical test tools, meters, and various types of measuring devices. It combines performance and functionality with simple operation, making it suitable for calibration laboratories, workshops and on-site test facilities.

Functions include AC/DC voltage and current, digital frequency, variable resistance, conductance, capacitance, inductance, thermocouple and Pt100 simulation. AC and DC power calibration via simultaneous voltage and current output, with adjustable phase, and frequency to 500 Hz. An oscilloscope calibration option enables generation of levelled sine-waves up to 2.2 GHz.

Clamp meter calibration is simplified by additional TurnCoil ranges for DC and AC current, designed for use with the 9780 adaptor. Further options include an optical tachometer calibration adaptor, 100 A AC current transformer, and a power amplifier that increases the AC/DC voltage output drive capabilities to 100 mA. Accessories include test lead sets, carry case options, and calibration software for automation.

Calibration capabilities

The 5025C-S2 can calibrate various instruments and devices including:

- Analogue and digital multimeters, panel meters, process meters
- Clamp meters (with clamp coil option 9780)
- Power meters, watt meters
- Tachometers, chart recorders, data loggers
- Thermocouple and Pt100 meters, electronic thermometers
- Oscilloscopes and timer counters (with SCP option)

Simple operation

Front panel operation is easy and intuitive. Quickly select functions and ranges, set output values and increment digits up/down via the keypad. A deviation control feature enables the user to finely adjust the output value as a percentage ($\pm 9.999\%$). All information is shown on a clear, easy to read alphanumeric display.

Virtual control software

The 5025C-S2 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.

Features

- 0 to 1050 V AC/DC voltage
- 0 to 22 A AC/DC current
- $1\ \Omega$ to $1.1\ \text{G}\Omega$ variable resistance
- Thermocouple and Pt100 simulation
- Power calibration
- Capacitance and inductance
- Optional oscilloscope calibration
- Clamp meter calibration
- RS-232, USB, and GPIB interfaces
- PC Virtual Control Software included
- Supplied with test lead set
- EasyCal software compatible

EasyCal Calibration Software

The 5025C can be controlled via Time Electronics EasyCal software to automate the calibration process. This provides increased speed of calibration and consistency of results. Produce traceable calibration certificates and test reports for quality standards with additional uncertainty information for ISO 17025 conformance.





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Technical Specifications (for full technical data see extended specifications sheet)

Function	Range / Values	Best 1 year Specification
Voltage DC	0 to ± 1050 V	± 15 ppm of setting
Current DC	0 to ± 22 A 1100 A with clamp meter adaptor (option 9780)	± 60 ppm of setting
Voltage AC	2 mV to 1050 V / 20 Hz to 1 MHz sine-wave	± 0.05 % of setting
Current AC	10 μ A to 22 A / 20 Hz to 5 kHz sine-wave 100 A with current transformer (option 9790) 1100 A with clamp meter adaptor (option 9780)	± 0.05 % of setting
Digital frequency	0.1 Hz to 10 MHz	± 20 ppm of setting
Digital period	100 ns to 10 s (fixed values 1, 2, 5 sequence)	± 20 ppm of setting
Conductance	100 mS to 1 nS (decade values)	± 100 ppm of setting
2-wire variable resistance	1 Ω to 1.1 G Ω	± 100 ppm of setting
4-wire decade resistance	1 Ω to 100 k Ω	± 30 ppm of setting
RTD simulation	-180 to 850 °C. Type Pt100, Pt200, Pt500, Pt1000	± 0.03 °C
Thermocouple simulation	-210 to 2315 °C. Type J, K, R, T, S, B, E, N, C, L, U	± 0.05 °C
Capacitance	1nF, 10nF, 20nF, 50nF, 100nF, 200nF, 500nF, 1 μ F, 10 μ F, 20 μ F, 50 μ F, 100 μ F	± 0.2 % of setting
Inductance	1mH, 1.9mH, 5mH, 10mH, 19mH, 50mH, 100mH, 190mH, 500mH, 1H, 10H	± 0.1 % of setting
Power	22 A, 1050 V, 23 kW, 40 to 500 Hz	ACV: 0.05 %, DCV: 0.01 %. ACI: 0.1%, DCI: 0.05 %
Phase / Power factor	$\pm 90^\circ$ / 0.00 to 1.00 PF	$\pm 0.25^\circ$
Option 9780: Clamp meter adaptor	AC/DC Current up to 1100 A (DC, 45 to 90 Hz)	± 0.5 %

Oscilloscope Calibration (5025C-S2/SCP)

Amplitude	2 mV to 200 V (1 M Ω) and 1 mV to 2 V 50 Ω (Square-wave or DC)	± 0.05 %
Frequency (fixed values 1, 2, 5 sequence)	0.1 Hz to 10 MHz 20 MHz, 50 MHz, 100 MHz	± 0.1 ppm ± 20 ppm
Period (fixed values 1, 2, 5 sequence)	10 s to 100 ns 50 ns, 20 ns, 10 ns	± 0.1 ppm ± 20 ppm
Duty cycle	3 frequencies: 100 Hz, 1 kHz, 10 kHz, settable from 0 to 100 %	–
Fast-rise	< 400 ps. Bandwidth checking up to 400 MHz	–
Levelled sine wave	50 to 1000 kHz & 10 MHz to 2.2 GHz levelled sine-wave (0.35 to 3.5 V pk-pk)	Amplitude ± 0.5 %, Frequency ± 50 ppm

External Options

External Adaptors/Instruments	9780: Clamp meter adaptor (1 and 50 turn coil) • 9773: Optical tachometer adaptor • 9790: 100 Amp AC current transformer 9760: Power amplifier (60 V AC, 90 V DC, 100 mA) • 9762: Rubidium high stability frequency reference 9764: Current probe calibration adaptor • 9766: Low noise attenuator (1000:1) • 9767: Low noise attenuator (100:1)
Accessories	9085: Soft carry case • 9059: Hard transit case • 9728: 19" Universal rack mount kit
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

Mains voltage..... 100 to 260 V AC 50/60 Hz.
Fuse ratings3.15 A anti-surge.
Power consumption 120 W typical, 200 W maximum.
Temperature performance Operating: 10 to 40 °C. Storage: -10 to 50 °C.
Operating humidity..... < 80 % non condensing.
Altitude 0 to 3 km. Non operating: 3 to 12 km.
Warm up30 minutes to full accuracy.
Interfaces.....RS-232, GPIB and USB (via RS-232 adaptor). Command set: Standard SCPI.
Dimensions / Weight.....W 447 x H 152 x D 470 mm. Weight: 16.5 kg.
Supplied accessories.....Premium test lead set (S2PTL), PC virtual control software, RS-232 cable, RS-232 to USB adaptor, user manual.

Due to continuous development Time Electronics reserves the right to change specifications without prior notice.



Ordering Information

Code	Description
5025C-S2	5025C Series 2 Multifunction Calibrator AC/DC 1050 V / 22 A, 2-wire variable resistance to 1.1 G Ω , 4-wire decade resistance to 100 k Ω , Pt100 simulation, thermocouple simulation, conductance, capacitance, inductance, power calibration, 10 MHz digital frequency. Supplied with series 2 premium test lead set, virtual control software, traceable calibration certificate.
5025C-S2/ACRD	5025C Series 2 Multifunction Calibrator with accredited calibration AC/DC 1050 V / 22 A, 2-wire variable resistance to 1.1 G Ω , 4-wire decade resistance to 100 k Ω , Pt100 simulation, thermocouple simulation, conductance, capacitance, inductance, power calibration, 10 MHz digital frequency. Supplied with series 2 premium test lead set, virtual control software, accredited calibration certificate (ISO 17025).
5025C-S2/SCP	5025C Series 2 Multifunction Calibrator with oscilloscope calibration option AC/DC 1050 V / 22 A, 2-wire variable resistance to 1.1 G Ω , 4-wire decade resistance to 100 k Ω , Pt100 simulation, thermocouple simulation, conductance, capacitance, inductance, power calibration, 10 MHz digital frequency, 2.2 GHz oscilloscope calibration option fitted. Supplied with series 2 premium and scope test lead sets, virtual control software, traceable calibration certificate.
5025C-S2/SCP/ACRD	5025C Series 2 Multifunction Calibrator with oscilloscope calibration option and accredited calibration AC/DC 1050 V / 22 A, 2-wire variable resistance to 1.1 G Ω , 4-wire decade resistance to 100 k Ω , Pt100 simulation, thermocouple simulation, conductance, capacitance, inductance, power calibration, 10 MHz digital frequency, 2.2 GHz oscilloscope calibration option fitted. Supplied with series 2 premium & scope test lead sets, virtual control software, accredited calibration certificate (ISO 17025).
Adaptors, accessories and options	
9762	Rubidium high stability frequency reference (for use with 5025E-S2/SCP models)
9764	Current probe calibration adaptor (for use with 5025E-S2/SCP models)
9773	Optical tacho adaptor
9780	Clamp meter adaptor (1 and 50 turn coil)
9790	100 Amp AC current transformer
9760	Power amplifier (60 V AC, 90 V DC, 100 mA)
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
EW01	Extended warranty - 3 years total covering parts and labour.
EasyCal software licenses	
ECFLA	EasyCal full license (discounted price when purchased with calibrator)
EC2FL	EasyCal additional full license (secondary user)
EC2WL	EasyCal work station license (full management/scheduling, no calibration run)
EasyCal accessories	
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	GPIO cable
9743	PCI to GPIO interface card for PC

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