Description

A precision multi-product calibrator designed for wide calibration workload coverage at an affordable cost. Accurately test and verify both traditional and new test equipment with a calibrator that meets both technical and budget requirements. The 5025E is ideal for companies requiring a calibrator that can be implemented quickly and easily, providing immediate return on investment.

The 5025E is fitted with AC/DC voltage to 1050 V, AC/DC current to 22 A, digital frequency to 10 MHz, decade resistance to 1 GΩ, simulated variable resistance from 40 Ω to 40 kΩ, conductance, capacitance, thermocouple and Pt100 simulation.

An optional enhanced performance pack increases the specification of certain functions for wider calibration coverage. It provides full range variable resistance to 120 MΩ, extended temperature functions, extended capacitance, and increased ACV frequency bandwidth. Also available are oscilloscope and power calibration options.

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

Wide workload coverage

The 5025E 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 5025E 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 5025E 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 Ω to 1 GΩ resistance
- Thermocouple and Pt100 simulation
- Digital frequency
- Capacitance
- Optional oscilloscope and power calibration
- Optional clamp meter calibration
- RS-232/USB/GPIB interfaces
- PC Virtual Control Software included
- Supplied with test lead set
- EasyCal software compatible

EasyCal Calibration Software

The 5025E 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.

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

Function	Range / Values	Best 1 year Specification
Voltage DC	0 to ± 1050 V	± 40 ppm of setting
Current DC	0 to ± 22 A 1100 A with clamp meter adaptor (option 9780)	± 120 ppm of setting
Voltage AC	1 mV to 1050 V / 20 Hz to 20 kHz sine-wave	± 0.04 % of setting
Current AC	10 μA to 22 A / 20 Hz to 1 kHz sine-wave 100 A with current transformer (option 9790) 1100 A with clamp meter adaptor (option 9780)	± 0.07 % of setting
Thermocouple simulation	-210 to 1820 °C. Type J, K, R, T, S, B, E, N	± 0.3 °C
Digital frequency/period	0.1 Hz to 10 MHz / 100 ns to 10 s	± 20 ppm of setting
Conductance	100 ms to 1 ns (decade values)	± 60 ppm of setting
Decade resistance	10 Ω to 1 GΩ (decade values)	± 60 ppm of setting
Simulated resistance	40 Ω to 40 kΩ (variable)	± 0.02 % of setting
PT100 simulation	-140 °C to 850 °C	± 0.25 °C
Capacitance	10 nF, 20 nF, 50 nF, 100 nF, 1 μF	± 0.25 % of setting
Option 9780: Clamp meter adaptor	AC/DC Current up to 1100 A (DC, 45 to 90 Hz)	± 0.5 %
Option 9770: Oscilloscope Calibration		
Amplitude	2 mV to 200 V and 1 mV to 2 V 50 Ω (Square-wave or DC)	± 0.05 %
Frequency/Period	0.1 Hz to 100 MHz / 10 ns to 10 s (fixed values 1, 2, 5 sequence)	± 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	–
Option 9783: Frequency reference	0.1 Hz to 10 MHz enhanced frequency accuracy reference	± 0.1 ppm (enhanced accuracy for timer/counters)
Option 9769: 2.2 GHz Sweep	50 MHz to 2.2 GHz levelled sine-wave (0.5, 1, 1.5 V pk-pk)	Amplitude ± 1 %, Frequency ± 20 ppm
Option 9797: Power Calibration		
Power	22 A, 1050 V, 23 kW, 45 to 400 Hz	ACV: 0.03 %, DCV: 0.01 %. ACI: 0.1%, DCI: 0.03 %
Phase / Power factor	± 90° / 0.00 to 1.00 PF	± 0.3°
Option 9702: Enhanced Performance Pack (added values/types shown in bold where applicable)		
Full range resistance	1 Ω to 120 MΩ (variable)	± 100 ppm of setting
RTD Simulation	−180 to 850 °C. Type **Pt100, Pt200, Pt500, Pt1000**	± 0.03 °C
Extended thermocouple simulation	−210 to 2315 °C. Type J, K, R, T, S, B, E, N, C, L, U	± 0.05 °C
Extended capacitance	1nF, 10nF, 20nF, 50nF, 100nF, 200nF, 500nF, 1μF, **10μF, 20μF, 50μF, 100μF**	± 0.2 % of setting
Extended AC voltage frequency	1 mV to 200 mV/300 kHz, 200 mV to 2 V/1 MHz	± 0.05 % of setting

External Options

External Adaptors/Instruments	9780: Clamp meter adaptor (1 and 50 turn coil) • 9773: Optical tacho 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 and Calibration Certificates	9085: Soft carry case • 9059: Hard transit case • 9728: 19 " Universal rack mount kit 9796: Premium test lead set • C159: Traceable calibration certificate • C103: Accredited calibration certificate
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. Full Spec: 23 °C ± 5 °C. Storage: –10 to 50 °C.

Operating humidity / Altitude ....< 80 % non condensing. Altitude: 0 to 3 km. Non operating: 3 to 12 km.

Line power ....100 to 230 V AC 50/60 Hz. 200 W maximum.

Interfaces ....RS-232 and USB.

Dimensions / Weight ....W 455 x H 155 x D 480 mm. Weight: 16.5 kg.

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

Ordering Information

Code	Description
5025E	Multifunction Calibrator (40 ppm) AC/DC 1 kV / 22 A. Decade Resistance to 1 GΩ, Simulated Resistance 40 Ω to 40 kΩ, Thermocouple Simulation (J,K,R,T,S,B,E,N), Conductance, Pt100 Simulation, Capacitance, 10 MHz Frequency, Basic Test Lead Set, Virtual Control Software.
5025C Internal options	
9702	5025E Enhanced Performance Pack Full range variable resistance, extended temperature functions, extended capacitance, and increased ACV frequency bandwidth.
9797	Power Calibration (0 to 20 kW AC and DC)
9770	Oscilloscope Calibration (1 mV to 200 V, 0.1 Hz to 100 MHz / Bandwidth checking to 400 MHz)
9783	Oven-Controlled Frequency Reference (for timer/counters, increases accuracy to 0.1 ppm from 0.1 Hz to 10 MHz). Option 9770 must be fitted.
9769	Oscilloscope Calibration 2.2 GHz 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 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
9796	Premium Test Lead Set (basic test lead set supplied as standard)
C159	Traceable calibration certificate (Factory)
C103	Accredited calibration certificate (ISO 17025)
EW01	Extended Warranty - 3 years total covering parts and labour.
EasyCal software licenses	
ECFLA	EasyCal Full License (discounted price when purchased with 5025E)
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 Sofware: 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.

Time Electronics Ltd, Unit 5, TON Business Park, 2-8 Morley Road, Tonbridge, Kent, TN9 1RA, United Kingdom
T: +44 (0) 1732 355993 | F: +44 (0) 1732 350198 | mail@timeelectronics.co.uk | www.timeelectronics.com

v2a
05/20