



Description

The 5077 Series 2 model is a multifunction calibrator for sourcing AC/DC voltage and current, and single-phase power. It can be used as a workload calibrator for verification of electrical measurement devices, or as a programmable source in an automated test rig for meter testing.

The series 2 model offers the same coverage as its predecessor with additional ranges, front panel operation, and independent voltage and current functions. This added functionality increases the workload capabilities, whilst maintaining performance for dedicated testing of single-phase watt-meters, power meters, and kW-Hr meters.

For power the 5077 voltage range is 2 mV to 1050 V, with current from 2 mA to 22 A. Frequency is adjustable from 40 to 500 Hz, and phase $\pm 90.0^\circ$ in 0.1° steps. Alternatively power factor (PF) can be set in steps of 0.01. The output can be displayed as VA or Watts. The wide current and voltage ranges enable verification of power meters on either the primary side of the CT / VT or directly connected to the meter (secondary side).

The standard maximum AC current output (22 A) can be extended to 100 A by using an optional 100 A current transformer (model 9790). This extends the maximum power to 0.1 MW/MVA. A single and 50-turn current clamp adaptor (model 9780) is available for clamp sensor and meter calibration up to 1000 A. The 5077 features turn coil ranges for DC and AC current, designed for use with this adaptor. Further options include test lead sets, carry case options, and calibration software.

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.

Calibrator control software

The calibrator control software provides an advanced user interface with intuitive operation via a PC or laptop. It enables a fast method of function selection, setting and output. Quickly adjust and deviate values, and easily select ranges and units required. A one year license is supplied as standard.

Features

- 0 to 1050 V AC/DC voltage
- 0 to 22 A AC/DC current
- Single-phase power simulation
- Up to 23 kVA or 23 kW
- Phase angle $\pm 90.0^\circ$
- Power factor 0.00 to 1.00
- Adjustable frequency from 40 to 500 Hz
- 100 A AC current transformer option
- Single/50-turn current clamp adaptor option
- RS-232, GPIB, and USB interfaces
- Calibrator control software included

EasyCal Calibration Software

The 5077 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
DC Voltage	0 to ± 1050 V	± 40 ppm of setting
DC Current	0 to ± 22 A 1000 A with clamp meter adaptor (option 9780)	± 120 ppm of setting
DC Power (simultaneous output of V & I)	23 kW / 23 kVA DCV: 2 mV to 1050 V DCI: 2 mA to 22 A	* ± 100 ppm of setting ± 150 ppm of setting
AC Voltage	2 mV to 1050 V / 20 Hz to 20 kHz sine-wave	± 0.05 % of setting
AC Current	10 µA to 22 A / 20 Hz to 5 kHz sine-wave 100 A with current transformer (option 9790) 1000 A with clamp meter adaptor (option 9780)	± 0.07 % of setting
AC Power (simultaneous output of V & I)	23 kW / 23 kVA, 40 to 500 Hz ACV: 2 mV to 1050 V ACI: 2 mA to 22 A	* ± 0.05 % ± 0.1 %
Phase	± 90.0°, 40 to 500 Hz	± 0.25°
Power Factor	0.00 to 1.00, 40 to 500 Hz	
Option 9780: Clamp meter adaptor	AC/DC Current up to 1000 A (DC, 45 to 90 Hz)	± 0.5 %

* The accuracy of the power is complex and is determined by using a formula, which combines the errors due to Voltage, Current, and Phase.
Power Accuracy (%) = $\sqrt{\text{Voltage Accuracy}^2 + \text{Current Accuracy}^2 + \text{Phase Correction}^2}$. Where Phase Correction (%) = $100 \times (1 - \cos(\text{Phase} + \text{PhaseAcc}) / \cos \text{Phase})$

External Options

External Adaptors/Instruments	9780: Clamp meter adaptor (1 and 50 turn coil) • 9790: 100 Amp AC current transformer
Accessories	9085: Soft carry case • 9059: Hard transit case • 9728: 19" Universal rack mount kit • 9796: Premium test lead set
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 • CREP: Crystal Reports software

General Specifications

Mains voltage..... 100 to 260 V AC 50/60 Hz.
Fuse ratings 3.15 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 up 30 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 Test lead set, calibrator control software (1 year license), RS-232 cable, RS-232 to USB adaptor, user manual.

Ordering Information

5077-S2 **5077 Series 2 Multifunction Power Calibrator**
AC/DC 1050 V / 22 A, 23 kW single-phase power calibration.
Supplied with test lead set, calibrator control software (1 year license), traceable calibration certificate.
5077-S2/ACRD **5077 Series 2 Multifunction Power Calibrator with accredited calibration**
AC/DC 1050 V / 22 A, 23 kW single-phase power calibration.
Supplied with test lead set, calibrator control software (1 year license), ISO 17025 calibration certificate.
9780 Single/50-turn current clamp adaptor
9790 100 Amp AC current transformer
S2PTL Series 2 premium test lead set
ECFLA EasyCal Software (see separate datasheet for options).

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