



Time Electronics

5077 Power Calibrator



- 1mV to 1050V AC/DC
- 0.02 to 22A AC/DC
- 0 to 22kVA or 0 to 22kW
- Phase angle $\pm 90^\circ$
- Power factor 0.00 to 1.00
- 100A AC current transformer option
- 45 to 400Hz in 0.1Hz steps
- Clamp meter adaptor option
- RS232/GPIB/USB interface
- Virtual control software supplied

DESCRIPTION

A high accuracy AC and DC power calibrator suitable for calibrating watt-meters, power meters, and kW-Hr meters. Supplied with its own "Virtual Control" software allowing the user full control via laptop or PC. Frequency can be set in 0.1Hz steps from 45 to 400Hz, and phase in 0.1-degree steps. Alternatively power factor (PF) can be set in 0.01 steps. The output can be displayed as VA or Watts.

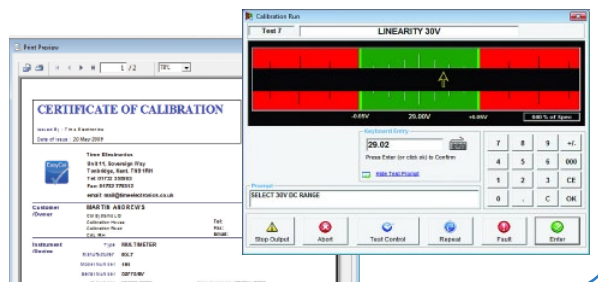
The standard maximum AC current output (22A) can be extended to 100A by using an optional 100A current transformer. This extends the maximum power to 0.1MW/MVA. A clamp meter adaptor option is also available (1 and 50 turns).



CALIBRATION MADE EASY

The 5077 can also be controlled using Time Electronics' EasyCal software. This provides increased speed of calibration and consistency of results.

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



5077 Specifications

Accuracy specifications are shown as ppm or % of output + floor. They apply to settings between 10% to 100% of range. Specifications apply at any ambient temp of 22°C +/- 3°C after the calibrator has warmed up for at least 1 hour. All values are relative to calibration standards. Minimum voltage setting 0.001V, minimum current 0.02A.

TECHNICAL SPECIFICATION

DC VOLTAGE

Range	Accuracy 1 year	Output Resistance	Max Output Current	Resolution
*2V	0.01% + 500µV	< 0.5Ω	20mA	1µV
*20V	0.01% + 500µV	< 0.5Ω	20mA	10µV
300V	0.02% + 30mV	< 5Ω	20mA	100µV
1050kV	0.05% + 50mV	< 10Ω	10mA	1mV

*Accuracy is specified at minimum current output.

DC CURRENT

Range	Accuracy 1 year	Compliance Voltage	Resolution
2A	0.03% + 500µA	5V	100µA
22A	0.05% + 6mA	4V	1mA

AC VOLTAGE (45Hz to 400Hz 0.02% Accuracy)

Range	Accuracy 1 year	Output Resistance	Max Output Current	Resolution
*2V	0.03% + 500µV	< 0.5Ω	20mA	100µV
*20V	0.03% + 2mV	< 1Ω	20mA	1mV
**300V	0.06% + 30mV	< 5Ω	20mA	10mV
**1050kV	0.08% + 90mV	< 10Ω	10mA	100mV

*Accuracy is specified at minimum current output.

**Accuracy is specified at 100Hz for current outputs less than 5A.

AC CURRENT (45Hz to 400Hz 0.02% Accuracy)

Range	Accuracy 1 year	Compliance Voltage	Resolution
2A	0.1% + 2mA	3.5V	100µA
22A	0.1% + 20mA	3V	1mA

PHASE ANGLE (Applies to outputs above 22 Volts)

Frequency	Range	Accuracy 1 year	Resolution
45 to 99Hz	-90.0 to +90.0 deg	0.3 deg	0.1 deg
100Hz to 400Hz	-90.0 to +90.0 deg	1 deg	0.1 deg

POWER FACTOR

Frequency	Range	Resolution
45 to 400Hz	0.00 to 1.00	0.01

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 (%) = $\text{SqrRt}(\text{Voltage accuracy}^2 + \text{Current accuracy}^2 + \text{Phase Correction}^2)$

Where Phase Correction (%) = $100 \times (1 - \text{Cos}(\text{Phase} + \text{PhaseAcc}) / \text{Cos Phase})$

GENERAL SPECIFICATION

Warm up.....	1 Hour to full accuracy
Settling Time	Less than 5 seconds
Standard Interfaces.....	GPIO (IEEE-488), RS-232, USB
Temperature Performance	Operating: 10 to 40°C, Full Spec: 23°C +/- 5°C, Storage: -10°C to 50°C
Operating Humidity / Altitude	Humidity - Operating: < 80% non condensing. Altitude 0 to 3km. Non operating 3 to 12km
Line Power.....	100 to 230V AC 50/60 Hz. Power Consumption 60W typical, 80W Max.
Dimensions / Weight	W440 x H198 x D580mm (17.6 x 7.8 x 32.8") / 25kg (36lbs)
Supplied With.....	Virtual control software, user manual, RS-232 cable, USB adaptor/cable

ORDERING INFORMATION

5077	Power Calibrator	C160	Factory Calibration Certificate (NPL)
9790	100 Amp AC Current Transformer	C124	UKAS Calibration Certificate (ISO 17025)
9780	Clamp Meter Adaptor	ECFLA	EasyCal Software (see separate datasheet for options)
9735	Test Lead Set		

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

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