



Time Electronics 5018 Programmable DC-AC V-I Calibrator



High Accuracy Programmable DC/AC Source

The 5018 is a versatile instrument capable of covering a wide range of testing applications. It can be configured as a dedicated single function DC voltage source, or as an advanced AC/DC voltage and current calibrator. Primarily designed for production environments and R&D, the 5018 can be controlled via PC or laptop, programmed to perform any number of tasks as part of a complex ATE test rig.

Ramping Feature

The 5018 includes an internal ramping feature. A ramp rate per range for each function can be set via a PC. The option to ramp the output can be turned on or off via the front panel. This is particularly useful in aviation and automotive industries for testing analogue gauges.

Simple Operation

Front panel operation allows the user to quickly set the function and output required. Using the jog / shuttle dial deviation the user can finely adjust the output value as a percentage ($\pm 99.99\%$). All this information is shown on a clear, easy to read LED display.

GPIO, RS-232, and USB Interfaces

These interfaces allow the 5018 to be connected to a PC and controlled by an external program such as EasyCal calibration software. The 5018 uses a SCPI command structure for programming. This makes writing control programs in Visual Basic, C and Labview a simple task.

EasyCal software is primarily used for calibration work, but it is also a powerful automation tool to control and readback from a wide range of programmable instruments. So it can be utilised with comprehensive ATE systems and configured to control a variety of applications. The readback capabilities enable closed loop testing, and conditional tests can be configured to set up automated decision making.

Features

- 0 to 22 V DC
- Optional 0 to 22 V AC, 220 V DC and 1 kV DC
- Optional 0 to 220 mA AC/DC
- 15 ppm accuracy, 0.5 ppm resolution
- 1999999 full scale $\pm 10\%$ over-range
- Deviation control -9.999% to $+9.999\%$
- Ramping feature
- Ideal for ATE applications in production and R&D
- Rack mount kit option
- RS-232, USB, GPIO interfaces

EasyCal Calibration Software

The 5018 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

Accuracy specifications are shown as ppm (or %) of output + floor and apply for settings between 10 % and 100 % of range.
Specifications apply at an ambient temperature of 23 °C ± 5 °C after the calibrator has warmed up for at least 1 hour.

DC Voltage

Range	Accuracy 1 year	Output resistance	Max output Current	Resolution
22 mV	30 ppm + 4 μ V	10 Ω	-	100 nV
220 mV	15 ppm + 6 μ V	10 Ω	-	1 μ V
2.2 V	15 ppm + 20 μ V	< 0.15 Ω	20 mA	1 μ V
22 V	15 ppm + 150 μ V	< 0.15 Ω	20 mA	10 μ V

DC High Voltage options (9721: 220 V range only / 9720: Both ranges)

Range	Accuracy 1 year	Output resistance	Max output current	Resolution
220 V *	15 ppm + 1 mV	< 0.25 Ω	10 mA	100 μ V
1 kV *	25 ppm + 3 mV	< 1 Ω	1 mA	1 mV

* Minimum Load 20 k Ω

DC Current option 9718

Range	Accuracy 1 year	Compliance voltage	Resolution
220 μ A	150 ppm + 15 nA	11 V	1 nA
2.2 mA	100 ppm + 40 nA	11 V	10 nA
22 mA	80 ppm + 200 nA	11 V	10 nA
220 mA	80 ppm + 3 μ A	11 V	100 nA

AC Voltage option 9719: 10 Hz to 20 kHz (sine 0.01 % crystal controlled)

Range RMS	Accuracy % 1yr 10 Hz - 1 kHz	Accuracy % 1 yr 1 kHz - 10 kHz	Accuracy % 1 yr 10 kHz - 20 kHz	Output resistance	Max output current	Resolution
22 mV	0.05 % + 100 μ V	0.05 % + 150 μ V	0.05 % + 250 μ V	10 Ω	-	1 μ V
220 mV	0.04 % + 100 μ V	0.04 % + 150 μ V	0.04 % + 250 μ V	10 Ω	-	1 μ V
2.2 V	0.03 % + 170 μ V	0.03 % + 250 μ V	0.03 % + 300 μ V	< 0.15 Ω	20 mA	10 μ V
22 V	0.03 % + 2.0 mV	0.03 % + 3.0 mV	0.03 % + 4.0 mV	< 0.15 Ω	20 mA	100 μ V

AC Current option: 20 Hz to 1 kHz (Sine) - available if current and AC options are fitted

Range RMS	Accuracy 1 year	Compliance voltage RMS	Resolution
220 μ A	0.07 % + 300 nA	5 V	10 nA
2.2 mA	0.05 % + 300 nA	5 V	10 nA
22 mA	0.05 % + 3 μ A	5 V	100 nA
220 mA	0.05 % + 30 μ A	5 V	1 μ A

General Specifications

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 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. Power consumption 60 W typical, 80 W maximum.
Dimensions / Weight	W 450 x D 272 x H 152 mm (18 x 11 x 7 ") / 8.2 kg (18 lbs).
Supplied with	User manual, RS-232 cable, USB adaptor/cable.

Ordering Information

5018	Programmable DC/AC V/I Calibrator	9796	Premium test lead set
9718	Internal Current option (220 mA max)	C142	Traceable calibration certificate (Factory)
9719	Internal AC option (22 V max)	C104	Accredited calibration certificate (ISO 17025)
9721	Internal 200 V DC option	9766	External low noise attenuator 1000:1
9720	Internal 1 kV DC option (includes 200 V DC option 9721)	9767	External low noise attenuator 100:1
9728	19 " universal rack mount kit	9795	Printer and connectivity kit
9541	Basic 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.