



5018 Programmable DC-AC V-I Calibrator

Time Electronics

Calibration, Test & Measurement

- 0 - 22V DCV. (30V DC Optional)
- Optional 0-22VAC, 220VDC & 1kVDC
- Optional 0-220mA AC/DC
- Ramping Feature
- GPIB, RS232 & USB Interface
- Ideal for ATE applications
- Rack mount kit available



EasyCal
Software Compatible

High Accuracy Programmable DC/AC Source

The 5018 covers a wide range of applications. It can be configured as a simple bench top DC voltage calibrator or advanced AC/DC voltage and current source controlled via PC, performing any number of tasks as part of a complex ATE test rig.

The outstanding accuracy and stability is achieved by the use of a patented circuit. It incorporates a dedicated micro-processor to continually monitor the state of a bank of precision voltage references. An external 1000:1 screened attenuator is available as an option for very low noise AC output.

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 very useful for testing analogue gauges.

Display

Simple 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 (+/- 99.99%). All this information is shown on a clear, easy to read LED display.

GPIB, RS232 & USB Interface

These interfaces allow the 5018 to be connected to a PC and controlled by an external program such as Time Electronics' 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.

Calibration Made Easy

Connect the 5018 to a PC/Laptop (via RS232, GPIB or USB) installed with Time Electronics EasyCal and automate the calibration process. Increase speed of calibration and consistency of results; produce calibration certificates and reports to ISO 9001 quality standards. EasyCal has the ability to control a wide range of programmable instruments and comprehensive ATE systems can be configured to control a variety of applications. It has full read back capability and therefore can perform closed loop testing. Conditional tests can be configured to allow decision making to further enhance the usefulness.

5018 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 temp of 22°C +/- 3°C after the calibrator has warmed up for at least 1 hour.

DC VOLTAGE

| Range | Accuracy 1 year | Output Resistance | Max Output Current | Resolution |
|---------------|-----------------------|-------------------|--------------------|------------|
| 22mV (33mV) | 30ppm + 4uV | 10Ω | - | 100nV |
| 220mV (330mV) | 15ppm (30ppm) + 6uV | 10Ω | - | 1uV |
| 2.2V (3.3V) | 15ppm (20ppm)+ 20uV | < 0.15Ω | 20mA | 1uV |
| 22V (30V) | 15ppm (20ppm) + 150uV | < 0.15Ω | 20mA | 10uV |

30V option (9724) shown in brackets

DC HIGH VOLTAGE OPTIONS 9720/9721

| Range | Accuracy 1 year | Output Resistance | Max Output Current | Resolution |
|-------|-----------------|-------------------|--------------------|------------|
| 220V* | 15ppm + 1mV | <0.25Ω | 10mA | 100uV |
| 1kV* | 25ppm + 3mV | <1Ω | 1mA | 1mV |

***Minimum Load 20kΩ**

DC CURRENT OPTION 9718

| Range | Accuracy 1 year | Compliance Voltage | Resolution |
|-------|-----------------|--------------------|------------|
| 220uA | 150ppm + 15nA | 11V | 1nA |
| 2.2mA | 100ppm + 40nA | 11V | 10nA |
| 22mA | 80ppm + 200nA | 11V | 10nA |
| 220mA | 80ppm + 3uA | 11V | 100nA |

AC V OPTION 9719 10Hz to 20kHz Sine 0.01% crystal controlled

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

AC CURRENT OPTION (available if current & AC options are fitted) 20Hz to 1kHz (Sine)

| Range RMS | Accuracy 1 year | Compliance Voltage RMS | Resolution |
|-----------|-----------------|------------------------|------------|
| 220uA | 0.07% + 300nA | 5V | 10nA |
| 2.2mA | 0.05% + 300nA | 5V | 10nA |
| 22mA | 0.05% + 3uA | 5V | 100nA |
| 220mA | 0.05% + 30uA | 5V | 1uA |

General Specification

Power: 100V to 250V AC (+/-5%) 50/60Hz, less than 100 W.
Dimensions: W 450 x D 272 x H 152 mm (18x11x7").
Weight: 8.2Kg (18lbs).

Ordering Information

| Code | Description | Code | Description |
|------|-----------------------------------|------|---|
| 5018 | Programmable DC/AC V/I Calibrator | 9142 | Factory (NPL Traceable) Calibration Certificate |
| 9718 | Current Option (220mA Max) | 9747 | EasyCal Software - see separate datasheet |
| 9719 | AC Option (22V Max) | 9743 | PCI-GPIB Interface Card (Fitted in PC to control 5018 via GPIB) |
| 9720 | 1 KV DC Option | 9794 | USB-GPIB Interface (External unit PC USB for control via GPIB) |
| 9721 | 220V DC Option | 9597 | GPIB Interface Cable (2m length for connection of GPIB to 5018) |
| 9104 | UKAS Calibration Certificate | 9728 | 19" Rack Mount Kit |

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

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V1f 21/07/09