POWER SUPPLIES

Digital Programmable: Binary or BCD

Models 6129C–6131C & 6140A

- Digitally programmable in binary or BCD
- HP-IB compatible option J99 & 59301A
- Fast, accurate, bipolar output
- Digital inputs isolated from analog output
- Internal storage of digital data
- Digitally programmable current latch (on DVS models)- or voltage limit (on DCS model)

6129C

Digital Voltage Sources

HP's family of digital voltage sources (DVS's) includes models 6129C, 6130C, and 6131C. All models are programmable in binary or 8421 BCD and have many system-oriented features that enhance their use in automatic testing and control environments. Among these features are: isolation between the digital input and analog output lines, digital storage of programmed inputs, programmable current latch, analog input, and current monitoring terminals.

Isolation

All digital lines of the DVS's are isolated from the analog output. This feature is essential in automatic test systems to avoid forming ground loops that could impair system operation and damage the computer and instruments.

Nearly all computer manufacturers ground the power supplies for the digital I/O logic to the mainframe of the computer, which is connected to the ac power line ground. If a DVS did not have isolation, one of its analog output terminals would be connected to the digital input common line.

Internal Storage

The DVS's internally store the computer's output magnitude (voltage setting), polarity, range, and output latch/limit digital inputs when the computer's gate command is received. When the DVS has finished processing the digital input, it notifies the computer by transmitting its flag. Since the DVS stores the digital data, the computer does not have to continually refresh the DVS; it is free to carry out other important tasks. The DVS maintains its programmed output indefinitely, changing the output only when the computer changes the digital input data and sends another gate command.

In addition to eliminating the need for redundant programming by the computer, internal storage also facilitates the control of multiple DVS's from a single computer I/O channel. The number of DVS's that can be controlled from a single I/O channel depends on the capabilities of the computer's I/O data bus drivers. Most computers can easily drive up to eight DVS's.

Programmable Current Latch

Overcurrent protection is provided by a current latch circuit which can be externally programmed to one of eight values between 2% and 100% (six values for the 6131C) of the unit's rated output current. When activated, the current latch circuit turns off the output power amplifier reducing the output current to less than 20 mA. The reaction time of the current latch circuit (time between the start of a current overload and turn off of the power amplifier) can be adjusted by adding an external capacitor at the rear terminals. The upper current limit is safeguarded by a separate fixed current limit circuit that prevents the output current from exceeding 110% of the current rating. The computer is continuously informed of possible current overload or current latch conditions by status outputs which are fed back to the programming source.

Analog Input

In automatic test systems, it is often desirable to inject an ac "wiggle" on top of a programmable dc devel to measure impedance at various voltage levels, to simulate worst case power supply conditions for a module under test, or measure component parameters such as dynamic gain or transconductance. Many automatic control systems require this feature to provide "dither" for the system. All DVS's provide an analog input to fulfill this need.

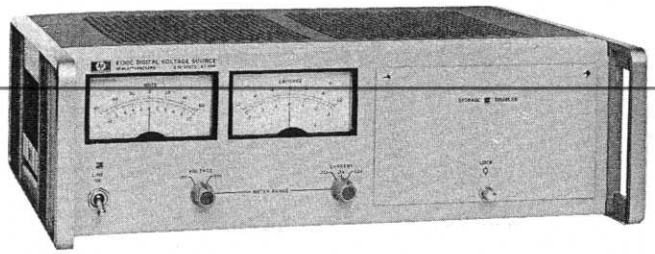
Current Monitoring Terminals

The output current of all DVS's can be measured without upsetting voltage accuracy by connecting a voltmeter across the current monitoring terminals on the rear barrier strip.

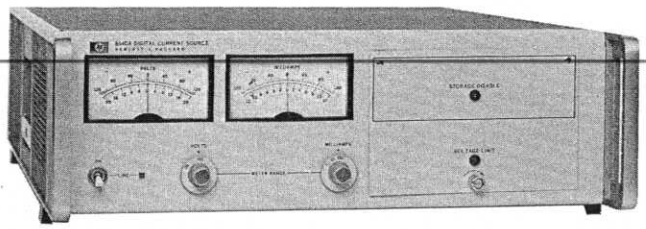
Digital Current Sources

The Digital Current Source, Model 6140A is ideally suited for system applications requiring a rapidly programmable, high-precision source of current.

The isolation, internal storage, and analog input features described for the DVS's also apply to the DCS's. In addition, the DCS's have programmable voltage limiting and voltage monitoring terminals.



6130C, 6131C



6140A

Common Specifications

AC Power Input

6129C: 115/230 V ac, 48–63 Hz; 6.4 A, 780 W @ 115 V ac; 115/230 V ac switch-selected.

6130C, 6131C: 115 V ac ±10%, 48–440 Hz; 1.2 A, 100 W.

6140A: 115/230 V ac, 48–63 Hz; 1.2 A, 100 W @ 115 V ac; 115/230 V ac switch selected.

Dimensions

6129C: 266.7 H x 425.5 W x 542.9 mm D (10.5″ x 16.75″ x 21.38″).

6130C, 6131C: 133.4 H x 425.5 W x 396.9 mm D (5.25″ x 16.75″ x 15.63″).

6140A: 133.4 H x 425.5 W x 542.9 mm D (5.25″ x 16.75″ x 21.38″).

Weight

6129C: net, 35 kg (78 lb). Shipping, 39 kg (85 lb).

6130C, 6131C: net, 15 kg (32 lb). Shipping, 18 kg (40 lb).

6140A: net, 17 kg (38 lb). Shipping, 20 kg (44 lb).

Cooling

6130C, 6131C: are convection cooled.

6129C, 6140A: are forced air cooled.

Programming time: less than 300 μs for output to settle to within 0.1% of programmed change. Range change requires 2 ms.

	Binary Instruments Option J20 & 064		BCD Instruments Option J99 & 063	
	X1 Range	X10 Range	X1 Range	X10 Range
6129C				
Output	±16.384 V, 5 A	±50.00 V, 5 A	±9.999 V, 5 A	±50.00 V, 5 A
Accuracy	1.5 mV	15 mV	1.5 mV	15 mV
Resolution	0.5 mV	5 mV	1 mV	10 mV
6130C				
Output	±16.384 V, 1 A	±50.00 V, 1 A	±9.999 V, 1 A	±50.00 V, 1A
Accuracy	1 mV	10 mV	1 mV	10 mV
Resolution	0.5 mV	5 mV	1 mV	10 mV
6131C				
Output	±16.384 V, 0.5 A	±100.00 V, 0.5 A	±9.999 V, 0.5 A	±99.99 V, 0.5 A
Accuracy	1 mV	10 mV	1 mV	10 mV
Resolution	0.5 mV	5 mV	1 mV	10 mV
6140A				
Output	±16.384 mA, 100 V	±163.84 mA, 100 V	±9.999 mA, 100 V	±99.99 mA, 100 V
Accuracy	1 μA ±0.01%	10 μA, ±0.01%	10 μA, ±0.01%	10 μA, ±0.01%
Resolution	0.5 μA	5 μA	1 μA	10 μA

Accessories Furnished:

1251-0086 50-contact rear plug.

5060-7948 Plug-in extender board for DVS models.

5060-7948/5060-7982 Two plug-in extender boards for DCS.

Software for HP Computers

Drivers in the form of punched paper tape with accompanying operating manuals are available for Hewlett-Packard BCS, DOS, RTE, and BASIC software operating systems. Contact your HP Field Engineer for prices and ordering information.

AC Power Option	Price
028: transformer tap change for 230 V ac ±10%, single-phase input on 6130C and 6131C.	N/C

Standard Interface Options

J20: binary interface for 12661A I/O programmer card for Hewlett-Packard computers	N/C
J99: interfacing DCPS's with calculator-based test control systems. All DCPS's may be modified to be compatible with ASCII-to-Parallel Converter, Model 59301A in calculator-based systems. In addition to DCPS modification, two items are supplied as part of Option J99: (1) a 1.83 m cable to connect DCPS to Model 59301A; (2) J99 Interface Note, containing Installation Instructions, Software Listings, Operating Instructions, and Diagnostics.	$170
063: BCD interface for microcircuit logic levels	N/C
064: binary interface for microcircuit logic levels	N/C

Special Options

If none of the standard interface options meet your requirements, quotations for special options may be obtained from your Hewlett-Packard field engineer.

Accessories Available

14533B: Pocket programmer permits manual programming of all input functions by switch closure	$285
14534A: Pocket programmer extension cable (3 ft)	$170
14535A: HP computer interface kit includes 12661A computer I/O card, 14539A cable, verification software and BCS Driver. Up to eight DCPS's may be controlled from one 14535A	$1700
14539A: cable connects the first DCPS in a chain of up to eight instruments to the 12661A DVS programming card for Hewlett-Packard computers	$245
14536A: chaining cable connects an additional DCPS to the existing chain of DCPS's	$290

Ordering Information

6129C: Digital Voltage Source	$4900
Opt 908: Rack Flange Kit	add $31
6130C, 6131C: Digital Voltage Source	$2900
6140A: Digital Current Source	$4900
Opt 908: Rack Flange Kit	add $22