

ARRAY



www.biall.com.pl

3720A/3721A

DC Electronic Load

The feature rich, 3720A and 3721A Electronic Loads provide an adaptable, and functional asset wherever power sources need to be tested. These units are designed to provide high reliability, great performance, and ease of operation with multiple functionality. Each unit provides:

- 4 operating modes: Constant Current, Constant Voltage, Constant Resistance, Constant Power;
- High-speed sequence, high-speed transient, short-circuit, battery discharge and other auxiliary functions;
- Minimum operating voltage is less than 0.6V at the load's full rated current;
- Optional zero-voltage test accessories are available;
- Programmable current slew rate;
- Perfect protection assures high reliability in the most complicated test environment;
- Multiple groups of parameters and sequences can be saved and recalled;
- Ruggedized structure, exquisite user-friendly design and convenient operation;
- Supports SCPI (Standard Commands for Programmable Instrumentation) and Labview, and provides necessary PC software.





www.biall.com.pl

3720A/3721A

High Reliability

- Protective circuitry provides over-current, over-voltage, over-power, over-temperature and reverse polarity protection to ensure the protection of the electronic load;
- A high-speed, power limiting circuit can limit input power rapidly when it is overloaded, thus there is no need to interrupt testing. Equipment adaptability to complicated operational environments is thereby greatly enhanced.
- A high-efficiency, intelligent cooling system can effectively reduce system temperature and enhance power density;
- The input binding posts with their innovative design are especially suitable for large current testing. They are easy to operate, reliable and durable;
- The specially ruggedized case with its rubber bumpers protects the load thus effectively prolonging the unit's service life.

Great Performance

- Circuit improvement greatly enhances the dynamic response of CR mode and widens the application scope of that mode;
- The innovative CPV and CPC modes can be applied to testing voltage/current source with constant power respectively, and both modes can effectively prevent short circuit when the set power level of the load exceeds the output power of the power supply;
- Minimum operating voltage is less than 0.6V at the load's full rated current. With optional low-voltage testing devices, the maximum current can be achieved even though the input voltage is 0V. This is especially suitable for fuel cell, solar cell and other new energy test applications;
- By adopting the optimum algorithm and high-speed hardware circuitry, the D/A conversion rate can reach up to 100kHz. The overall smoothness of slope control has been raised, meanwhile, the timing precision and resolution of transient test and sequential test have also been improved;



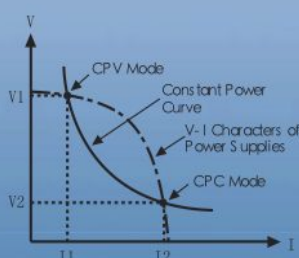
- The 24 bit A/D and 17 bit D/A converters incorporated, provide this equipment with greatly enhanced setting and measurement resolution.

Multifunction

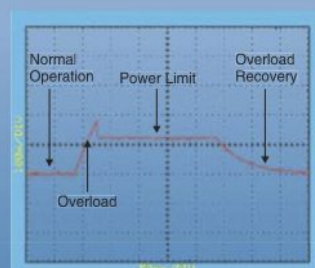
- Equipped with four basic test modes: CC, CV, CR, CP;
- High-speed transient operation with separate high/low level time and rising/falling time control;
- Powerful sequential test function; with a minimum step time of 10us; and a maximum step time of 100000s. Cyclic numbers can be adjusted freely and a sequence can be chained to another sequence to achieve even more complex test procedures;
- Providing short-circuit test, battery discharge test and other auxiliary functions;
- Remote sense input terminals and trigger input terminal are provided. The remote measurement can monitor the input signal automatically, and it is not necessary to change wiring or modify settings during operation;
- 10 groups of setup parameters can be saved, and the preset parameters saved in location 0 can be recalled automatically at power-on;
- By supporting SCPI, it is easy to build an ATE(automatic test equipment) system that works with other programmable instruments via optional RS232, USB and GPIB interfaces.

Easy Operation

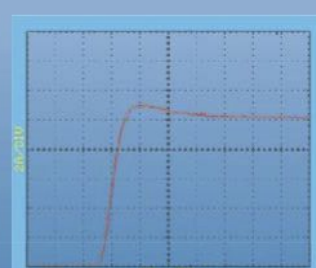
- Design optimized for portability and rugged reliability;
- Logical keypad design and convenient test operation;
- Easy-to-set test parameters coupled with a powerful sequence editing function;
- All electronic calibration - therefore no need to dismantle the equipment-chassis;
- Firmware can be updated online.



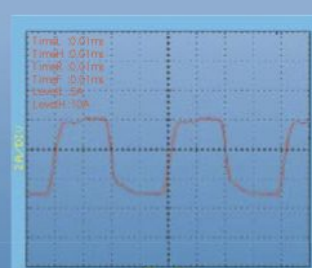
CPV Mode and CPC Mode



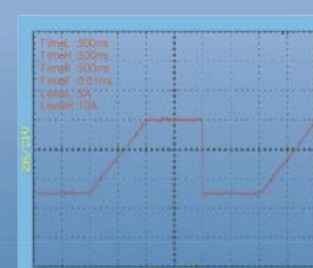
Power Limit Process



Turn on Characters (10V, 10A)



10kHz Transient Operation (Input Voltage: 5V)



Low Speed Transient Operation (Input Voltage: 5V)



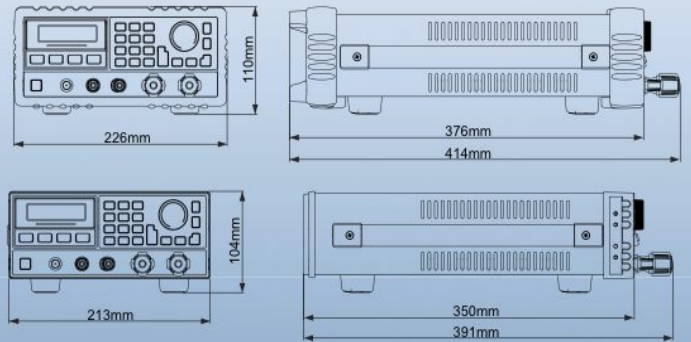
3720A/3721A Specifications

(The warm-up time is 30 minutes. Specifications indicate warranted performance in the 25°C ± 5°C region of the total temperature range).

Model	3720A	3721A
Input Ratings		
Current	0~30A	0~40A
Voltage	0~80V	0~80V
Power ¹	250W at 40°C	400W at 40°C
Input Characteristics		
Minimum Operation Voltage @ Full Scale Current	0.6V	0.6V
Constant Current Mode		
Low Range	0~3A	0~4A
Resolution	0.1mA	0.1mA
Accuracy	0.1%+5mA	0.1%+5mA
High Range	0~30A	0~40A
Resolution	1mA	1mA
Accuracy	0.1%+10mA	0.1%+10mA
Constant Voltage Mode		
Range	0~80V	0~80V
Resolution	1mV	1mV
Accuracy	0.1%+10mV	0.1%+10mV
Constant Resistance Mode		
Low Range	0.02~2Ω	0.02~2Ω
Resolution	0.1mΩ	0.1mΩ
Accuracy @ I>4A	0.5%+12mΩ	0.5%+12mΩ
Middle Range	2~200Ω	2~200Ω
Resolution	8.6μS ²	8.6μS
Accuracy @ V>8V	0.3%+1.25mS	0.3%+1.25mS
High Range	20~2000Ω	20~2000Ω
Resolution	0.96μS	0.96μS
Accuracy @ V>8V	0.3%+0.625mS	0.3%+0.625mS
Constant Power Mode		
Range	0~250W	0~400W
Resolution @ P<100W	1mW	1mW
@ P ≥ 100W	10mW	10mW
Accuracy	0.2%+600mW	0.2%+600mW
Current Measurement		
Low Range	0~3A	0~4A
Resolution	0.1mA	0.1mA
Accuracy	0.05%+4mA	0.05%+4mA
High Range	0~30A	0~40A
Resolution	1mA	1mA
Accuracy	0.05%+8mA	0.05%+8mA
Voltage Measurement		
Range	0~80V	0~80V
Resolution	1mV	1mV
Accuracy	0.1%+8mV	0.1%+8mV
Power Measurement		
Range	0~250W	0~400W
Resolution @ P<100W	1mW	1mW
@ P ≥ 100W	10mW	10mW
Accuracy	0.1%+600mW	0.1%+600mW
Current Slew Rates		
Range CCH, CCL ³	1mA/μs~3A/μs 100uA/μs~300mA/μs	1mA/μs~4A/μs 100uA/μs~400mA/μs
Resolution	1mA/μs	1mA/μs
Accuracy ⁴	3%+10μs	3%+10μs
Transient Operation		
Transient Mode	Continuous, Pulse, Triggered	Continuous, Pulse, Triggered
Frequency Range ⁵	0.38Hz~50kHz	0.38Hz~50kHz
High/Low Time	0~655.35ns	0~655.35ns
Resolution	10ns	10ns
Accuracy	0.2%+10ns	0.2%+10ns
Rising/Falling Time	10ns~655.35ns	10ns~655.35ns
Resolution	10ns	10ns
Accuracy	0.2%+10ns	0.2%+10ns
List Characteristics		
Step Time	10ns~10000ns	10ns~10000ns
Resolution	10ns	10ns
Accuracy	0.2%+10ns	0.2%+10ns
Number of Steps	1~50	1~50
Cycle	1~65535	1~65535
Store Capacity	7 lists	7 lists
Expanded Function	Chain	Chain

Model	3720A	3721A
Battery Discharge		
Discharge Time	1s~100h	1s~100h
Resolution	1s	1s
Accuracy	0.2%+1s	0.2%+1s
Battery Capacity	1mAh~3000Ah	1mAh~4000Ah
Resolution	1mAh	1mAh
Accuracy	0.3%+0.01Ah	0.3%+0.01Ah
Short Circuit		
CCL	3.3A	4.4A
CCH	33A	44A
CV	0V	0V
CRL	0.018Ω	0.018Ω
CRM	1.8Ω	1.8Ω
CRH	18Ω	18Ω
CPV	270W	420W
CPC	0W	0W
Maximum Slew Rate		
Current	3A/μs	4A/μs
Voltage	0.6V/μs	0.6V/μs
Programmable Open Circuit	≥20kΩ	≥20kΩ
Trigger Input		
Trigger Level	TTL falling edge	TTL falling edge
Trigger Pulse Width	≥10μs	≥10μs
Maximum Input Levels		
Current	33A	44A
Voltage	84V	84V
Protection Features	OV, OC, OP, OT, RV	OV, OC, OP, OT, RV
Reverse Current Capacity		
Input OFF	25A	30A
Input ON	40A	50A
Ripple and Noise		
Current(rms /p-p)	3mA/30mA	3mA/30mA
Voltage(rms)	5mV	5mV
Environmental Conditions		
Temperature	0~50°C	0~50°C
Relative Humidity	≤85%	≤85%
Remote Interface ⁶	RS 232, GPIB, USB	RS 232, GPIB, USB
Programming Language	SCPI	SCPI
AC Input		
Voltage	AC110V or AC220V ± 15%	AC110V or AC220V ± 15%
Frequency	48 to 63Hz	48 to 63Hz
Net Weight	5.8kg	5.8kg

- *1. Maximum continuous power available is derated linearly from 100% of maximum at 40°C, to 75% of maximum at 50°C.
- *2. Conductance (S) = 1 / Resistance (Ω). The siemens is the SI derived unit of conductance, and the symbol is "S".
- *3. The set level is 10 times larger than the slew rate in CCL mode.
- *4. The actual transition time is defined as the time required for the input to change from 10% to 90% or from 90% to 10% of the programmed excursion.
- *5. Transient frequency depends on the time for high/low level and rising/falling edge.
- *6. Full remote control via RS232 with optional GPIB and USB.



Distributor information: