



High Speed Multi-channel DC Electronic Load



Your Power Testing Solution

TECH IT8700P+ High Speed **Multi-channel DC Electronic Load**



IT8700P+ series high-speed multi-channel DC electronic load is an upgraded version of the original IT8700P series with higher speed and higher precision. Its modules support master-slave paralleling connection for power extension. It's compatible with IT8700P mainframe, the new modules and old modules can work together. The IT8700P+ modules have faster dynamic response and can make the minimum rise time of current less than rising time of minimum current < 10 µs. In addition, the low internal resistance makes it suitable for low-voltage loading test. Faster loop speed can accurately control current without overshoot which improves test efficiency. Furthermore, it has three current ranges for higher accuracy and lower ripple. The voltage and current measurement speed of this series has been upgraded to 250kHz. It has built-in LAN, USB and RS232 interfaces, and supports SCPI protocol. Therefore, IT8700P+ is good for system integration and is suitable for R&D and production line testing of super capacitors, fuel cells, lithium ion batteries, high-speed AC-DC and DC-DC power supplies such as computer power supplies and communication power supplies.

FEATURE

- Three-stage current range, higher accuracy and lower ripple
- Supports master-slave parallel connection of 16-channel modules. flexibly extends power
- Faster dynamic response, minimum current rise time < 10 μs
- Stable operation down to zero volts, suitable for low-voltage capacitors, solar cells, fuel cells, and other low-voltage high current power supplies
- Faster loop speed, precise control of current without overshoot
- The voltage and current measurement speed is upgraded to 250kHz, good for system integration
- Comprehensive protection functions: OVP/OCP/OPP/OTP, Sense protection
- *1 Current is no more than 15A if connecting with front terminals

Model	Voltage	Current	Power
IT8721P+	150 V	20 A	2*100 W
IT8731P+	150 V	40 A	200 W
IT8722P+*1	CH1:150 V CH2:150 V	CH1:20A CH2:20A	CH1:250W CH2:250W
IT8723P+	150 V	45 A	2*300 W
IT8732P+	150 V	60 A	400 W
IT8733P+	150 V	120 A	600 W
IT8722BP+*1	CH1:600 V CH2:600 V	CH1:15A CH2:15A	CH1:250W CH2:250W
IT8732BP+	600 V	20A	300W
IT8733BP+	600 V	30A	500W

- Compatible with IT8700P mainframe, old and new modules can be matched
- Short-circuit peak current measurement function
- Available front/rear terminals*1
- 8 operating modes: CC/ CV/ CR/ CW/ CV+CC/ CR+ CC/ CW+CC/ CV+CR (CR-LED)
- Automatic test function to tell whether the test results exceed the set specifications
- Built-in LAN, USB, RS232 interfaces
- · CV loop speed is adjustable to match different DUTs
- Multi channel synchronous control

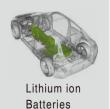
Main Frame	
IT8701P	Mainframe for 2 modules (including three interfaces)
IT8702P	Mainframe for 4 modules (including three interfaces)
IT8703P	Expansion mainframe for 4 modules

^{*1} Dynamic power allocation, the total power of two channels is 300W, and the power of one channel does not exceed 250W

Applications









power supply



DC-DC converter or PSU



High speed AC-DC converter or PSU

IT8700P+ High Speed Multi-channel DC Electronic Load

Flexible modules combination

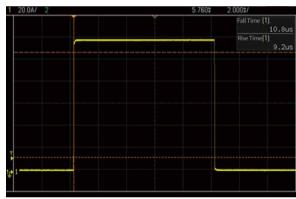
The IT8700P+ series is designed with removable modules, so that you can choose different modules according to your needs. These modules can work with the original IT8700P series modules too. There are high-performance microprocessor chips in each load module and mainframe. Parallel architecture is adopted to achieve faster testing. The load modules are controlled synchronously by the system, and the power supply with multiple outputs can also be tested synchronously.

Low voltage loading, stable operation down to zero volts

The IT8700P+ module has ultra-low on-resistance and three ranges. Under the medium and small range, the minimum load voltage is <0.1V. In the high current range, the minimum load voltage at full current is <0.5V, and lower input impedance can be obtained after parallel connection. It is suitable for testing fuel cells, supercapacitors, solar cells, DC-DC converters and other low voltage and high current electronic devices.

Fast dynamic response

Power supplies often have high requirements for instantaneous signals and dynamic response. In order to meet faster and faster testing requirements, IT8700P+ series provides high-speed, programmable dynamic sequence control. The current rise time is no more than 10 μs , much faster than the last generation. So it can be used for high-speed dynamic test of communication power supply and computer power supply. There are three modes of the dynamic test function, namely continuous mode, pulse mode and toggle mode.



IT8733P+(150V, 120A, 600W) dynamic current curve(1A-120A), curren slew 12A/us

Master-slave parallel connection

The IT8700P+ series supports master-slave parallel connection, 8 units (16 channels) at most can be connected in parallel, and the power can be extended to 4800W. The synchronization time error is 4us between paralleled units, and current equally assigning accuracy is 0.1%+0.1%F.S. Thanks to the flexible power extension, it can be used to test various DUTs and increase equipment utilization. The current sharing mode makes no sacrifice of the dynamic performance after parallel connection.

3 current ranges, well applied to Energy Star standard test for consumer electronics products

IT8700P+ provides 3 current ranges and higher measurement accuracy for DUTs that require high current accuracy like batteries. No need to build a complex test bench, the low current range of the IT8700P+ can be used for Energy Star standard testing in sleep, idle and standby modes of consumer electronics products. Actually it is suitable for almost all consumer electronics products that require precise current setting and measurement at the µA and mA levels.

Fast measurement of I-V characteristic

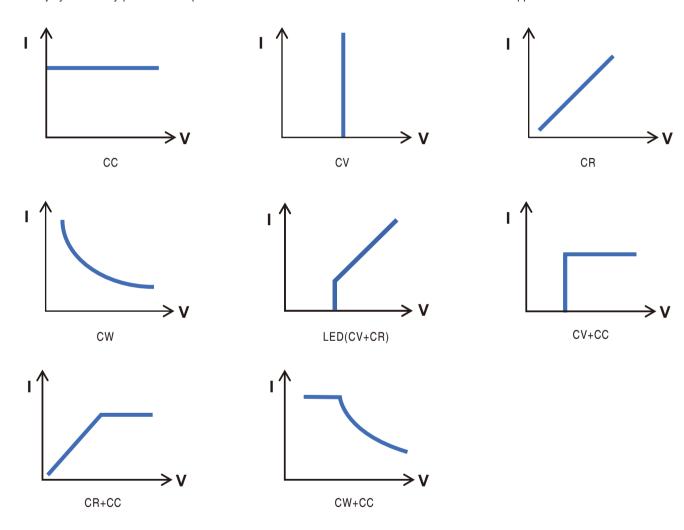
The voltage and current measurement of IT8700P+ is fast (up to 250kHz). It can be applied to various testing applications such as charging piles, automotive electronics; renewable energy and so on.



IT8700P+ High Speed Multi-channel DC Electronic Load

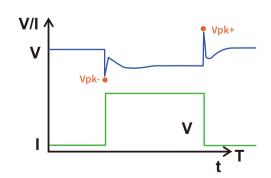
8 operation modes

Besides the four basic operation modes of CC/CV/CR/CW, IT8700P+ provides additional 4 compound operation modes : CV/ CC/ CR+CC/CW+CC/CV+CR(CR-LED). Under CV/CR/CW operation mode, the maximum current (I-Limit) is settable. This can effectively solve the problem of instantaneous surge current during testing and avoid triggering DUT's protection, or even burning out or any other injury caused by possible misoperation or environmental factors. So it can be used in various applications.



Peak voltage measurement(Vpk)

When measuring the dynamic current of a switching power supply, an oscilloscope was usually necessary to capture the instantaneous voltage and current waveforms and obtain Vpk+ and Vpk- accordingly. But with digital data acquisition function, IT8700P can directly obtain the Vpk+ and Vpk- values without an oscilloscope.



IT8700P+ High Speed Multi-channel DC Electronic Load

Para	meter		IT8723P+			1187	32P+	
	Voltage	0.1~	18V	0.1~150V		0.1~18V		0.1~150V
	Current	0 ~ 0.9A	0∼4.5A	0~45A	0∼1.2A	0-	~6A	0~60A
	Power	0 ~ 60W		800W	0∼96W 0~400W			400W
Rated value	Resistance	0.05Ω		$0.05\Omega\!\sim\!7500\Omega$		$05\Omega\sim10\Omega$		$0.05\Omega\sim7500\Omega$
naleu value	Min. resistance	≔50mΩ		15mΩ	≒50mΩ		=	:15mΩ
	MOV	0.06V at 0.9A	0.07V at 4.5A	0.7V at 45A	0.06V at 1.2A	0.05	√ at 6A	0.5V at 60A
	Input leak current			0.2mA		0.06mA		0.2mA
	Voltage	1n		10mV		1mV		10mV
	Current	0.1mA	0.1mA	1mA	0.1mA		.1mA	1mA
Set resolution	Power	O. HIIIA	10mW	IIIIA	O.IIIIA)mW	THIA
			16bit				6bit	
	Resistance	0.1		1mV		0.1mV	ODIL	1mV
Readback	Voltage				0.4mA		1 m A	
resolution	Current	0.1mA	0.1mA	1mA	0.1mA		1mA	1mA
	Power		10mW		(0.00)mW	
	Voltage	±(0.025%+0.0		±(0.025%+0.025%FS)		6%+0.025%FS)		±(0.025%+0.025%FS)
	Current	±(0.1%+0.1%FS)	±(0.05%+0.05%FS)	±(0.05%+0.05%FS)	±(0.1%+0.1%FS)	±(0.05%+0	,	±(0.05%+0.05%FS)
Set accuracy	Power *3		0.2%+0.2%FS				0.2%FS	
	Resistance*1	0.01%+0	0.08S *2	0.01%+0.0008S	0.0)1%+0.08S*2		0.01%+0.0008\$
Decellerat	Voltage		±(0.025%+0.025%FS)			±(0.025%+0	.025%FS)	
Readback	Current	±(0.1%+0.1%FS)	±(0.05%+0	0.05%FS)	±(0.1%+0.1%FS)		±(0.05%+	·0.05%FS)
accuracy	Power		±(0.2%+0.2%FS)			±(0.2%+	0.2%FS)	
Set temperature drift	Voltage	≤5	50ppm/°C + 50ppm/°C *F9	3		≤50ppm/°C +	50ppm/ C*	FS
coefficient(% of Output/ C +Offset)	Current	</td <td>50ppm/°C + 50ppm/°C*F</td> <td>3</td> <td colspan="4">≤50ppm/ C + 50ppm/ C *FS</td>	50ppm/°C + 50ppm/°C*F	3	≤50ppm/ C + 50ppm/ C *FS			
Readback Temperature	Voltage		opm/°C + 50ppm/°C*FS		≤50ppm/°C +50ppm/°C*FS			
drift coefficient((%) of	Current		50ppm/°C + 50ppm/°C *F	3	≤50ppm/°C + 50ppm/°C *FS			-
Output/ C+Offset)	Rising	0.0001~0.09A/µs	0.0001 ~ 0.45A/us	0.001∼4.5A/µs	0.0001∼0.1A/µs	0.0001~		0.001 ∼5A/µs
D	Falling	0.0001~0.09A/μs	0.0001 ~ 0.45A/μs 0.0001 ~ 0.45A/μs	0.001 ~ 4.5A/µs		0.0001~		0.001 ~ 5A/µs 0.001 ~ 5A/µs
Dynamic			·	·	0.0001∼0.1A/µs 10µo			
response *4	Min.rising time*5	≒ 10μs	≒10μs 0.001∼20kHz	≒10µs	≒10µs	≒10 0.004		≒10µs
	Dynamic frequency			0.001~				
	Voltage	1		110V ±10%or22				
AC parameter	Frequency				60Hz			
rio parameter	lmax.			0.0				
	Power factor		≥0.99		≥ 0.99 ±(0.02%+0.02%FS) ±(0.02%+0.02%FS)			
Set stability-30min(%	Voltage	±(0.02%+0.0	,	±(0.02%+0.02%FS)	,	,		±(0.02%+0.02%FS)
of Output/°C +Offset)	Current	±(0.05%+0.08%FS)	±(0.03%+0.03%FS)	±(0.03%+0.03%FS)	±(0.05%+0.08%FS)	±(0.03%+0	.03%FS)	±(0.03%+0.03%FS)
Set stability-8h(% of	Voltage			1				1
Output/ C+Offset)	Current		1		/			1
Readback stability-30min	Voltage		±(0.02%+0.02%FS)			±(0.02%+0.0	2%FS)	
(% of Output/ C+Offset)	Current	±(0.05%+0.08%FS)	±(0.03%+0	.03%FS)	±(0.05%+0.08%FS	6)	±(0.03%+0	0.03%FS)
Readback stability-8h	Voltage				/			
(% of Output/ C+Offset)	Current		1			1		
Sense voltage			≤2V			<u> </u>	2V	
Storage temperature			-20 °C ∼70 °C				~70°C	
	OPP	66W	310W	310W	100W		0W	410W
	OCP	0.99A	4.95A	49.5A	1.32A		6 A	66A
Protection	OVP				1.02A		<i>)</i>	
	OTP	18	.5V 105°C	155V		18.5V	SC.	85V
luta da a a *6	OIF		LAN, USB, RS232			LAN, USB		
Interfaces*6								
Isolation(output to ground)			500V/DC/1mA		500V/D0			
Isolation(input to ground)			1.5KV/AC/5mA		1.5KV/A			
Units parallel connected			≤16(channel)			≤16(ch		
Protection level			IP20				20	
Safety regulation			IEC 61010			IEC 6	1010	
Cooling			fan			fa	n	
Working temperature			0∼40°C			0~	40°C	
Dimension(mm)		82	2mm*183mm*573mm			82mm*183mr	n*573mm	

^{*1} Input voltage/current is not less than 10%FS (FS is full scale)

^{*2} Range of resistance readback value: (1/(1/R+(1/R)*0.01%+0.08),1/(1/R-(1/R)*0.01%-0.08))

^{*3} Input voltage/current is not less than 10%FS

^{*4} The loading current is not less than 2%FS

^{*5} Minimum rise time: 10%~90% of current rise time

^{*6} Each module does not have a separate communication interface and can be controlled through the host frame interface

oltage Current Power	0.1 <i>-</i> 0∼2.4A	~18V 0∼12A	0.1~150V		.1~60V	0.1~600V	
	0∼2.4A	0~12A	0.1004	0 004	0 04		
'ower			0~120A	0∼0.3A	0∼3A	0~15A	
	0~120W 0~600V		-600W	0∼120W	0-	~250W	
Resistance	0.05Ω′		10Ω~7500Ω		Ω~10Ω	$0.05\Omega\!\sim\!7500\Omega$	
lin. resistance	⇒50mΩ		13mΩ	≒400mΩ		=200mΩ	
MOV			1.5V at 120A		0.6V at 3A	3V at 15A	
						0.7mA	
				v .		10mV	
•				0.1m∆		1mA	
	O. IIIIA		TOTIA	V. IIIIA		IIIIA	
	0.1		1m\/			10mV	
•				0.1mA		1mA	
	U.IMA		IMA	U. IIIIA		IIIIA	
	/a a a a a		(/		(0.0000/ 0.0000/ 50)	
	,			,		±(0.025%+0.025%FS)	
	±(0.1%+0.1%FS)	,	±(0.05%+0.05%FS)	±(0.1%+0.1%FS)	, ,	±(0.05%+0.05%FS)	
	0.01%+	0.08S*2	0.01%+0.0008S	0.01%	6+0.08S*2	0.01%+0.0008S	
oltage		±(0.025%+0.025%FS)			±(0.025%+0.025%FS)		
Current	±(0.1%+0.1%FS)	±(0.05%+	-0.05%FS)	±(0.1%+0.1%FS)	±(0.05%+	+0.05%FS)	
ower		±(0.2%+0.2%FS)			±(0.2%+0.2%FS)		
oltage/	≤50)ppm/°C + 50ppm/°C*FS		≤	30ppm/℃ + 50ppm/℃*F5	3	
Current	≤50	ppm/°C + 50ppm/°C*FS	1	≤	50ppm/°C + 50ppm/°C *FS	3	
oltage	≤50)ppm/°C + 50ppm/°C*FS		≤30ppm/°C +50ppm/°C*FS			
Current	≤50)ppm/°C + 50ppm/°C*FS	1	≤	3		
Rising *4				0.0001~0.03A/us	0.0001~0.3A/us	0.001 ~ 1.5A/µs	
				•	0.0001 ~ 0.3A/µs	0.001 ~ 1.5A/µs	
		·			≒10us	≒10µs	
	7 1000		. τομο			Τομο	
	1:						
•							
				l l			
	. (0.000/ .0.00		. (0.000/ . 0.000/ EQ)		±(0.02%±0.02%ES)		
· ·	,	,	,	. (0.0E0/ . 0.000/ EQ)		. (0.039/ . 0.039/ EC)	
	±(0.05%+0.06%F5)	±(0.03%+0.03%FS)	±(0.03%+0.03%FS)	±(0.05%+0.06%F3)	±(0.03%+0.03%F3)	±(0.03%+0.03%FS)	
0	/	1	1	1	1	1	
	/	(0.000/ 0.000/ 50)	/	7	/ (0.000/ +0.000/ FO)	/	
0		,		. (0.050/ . 0.000/ 50)	,	 -	
	±(0.05%+0.08%FS)	±(0.03%+	0.03%FS)	±(0.05%+0.06%F5)	±(0.03%+	·0.03%FS)	
•	1		1	,		1	
urrent	/		1	I	- 01/	1	
		-20°C∼70°C					
	125W	610W	610W	132W		275W	
	2.64A	13.2A	132A	0.33A	3.3A	16.5A	
	18	3.5V	155V		63V	630V	
OTP		105°C			90℃		
		LAN, USB, RS232			LAN, USB, RS232		
		500V/DC/1mA			500V/DC/1mA		
		1.5KV/AC/5mA			1.5KV/AC/5mA		
		≤16(channel)			≤16(channel)		
		IP20			IP20		
		IEC 61010			IEC 61010		
		fan					
		iuii		fan			
		∩~40°C			0~40℃		
		0∼40°C 82mm*183mm*573m	m		0~40℃ 82mm*183mm*573mm		
	iput leak current oltage current ower lesistance oltage current ower oltage current ower oltage current ower oltage current	put leak current oltage current oltage current ower lesistance oltage current ower oltage current ower oltage current ower oltage current cower oltage current coltage current colta	put leak current oltage 1mV current oltage 1mV current oltage 10mW clesistance oltage 0.1 mV clesistance 16bit oltage 0.1 mV clesistance 16bit oltage 0.1 mV current 0.1mA 0.1mA 0.0mA 0.0mB 0.0mG		Dut leak current 0.06mA	put leak current olage inv 100 0.6mA ol.3mA ol.07mA oltage inv 10mV 10mV 10mV 10mV 10mV 10mV 10mV 10mM over 10mW 10mM 10mM 10mM 10mM 10mM 10mM 10mM 10mM	

^{*1} Input voltage/current is not less than 10%FS (FS is full scale)

^{*2} Range of resistance readback value: (1/(1/R+(1/R)*0.01%+0.08),1/(1/R-(1/R)*0.01%-0.08))

^{*3} Input voltage/current is not less than 10%FS

^{*4} Rise/fall slew rate: 10%~90% of current rising from 0 to Max.current

^{*5} Minimum rise time: 10%~90% of current rise time

^{*6} Each module does not have a separate communication interface and can be controlled through the host frame interface

			IT8733BP+						
	Voltage 0.1~60V 0.1~600V								
	Current	0~0.3A	0~3A	0~30A					
	Power	0~120W	J 0/1	000A					
Rated value	Resistance	0~120W 0.2Ω~`	10Ω	$10\Omega\!\sim\!7500\Omega$					
aleu value	Min. resistance	⇒500mΩ	1042	1022 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7					
	MOV	0.15V at 0.3A	0.3V at 3A	3V at 30A					
	Input leak current	0.13V at 0.3A 0.06r		0.7mA					
	Voltage	0.06r 1m		0.7mA 10mV					
	•	0.1mA	0.1mA						
Set resolution	Current	U.IIIIA		10mA					
01.000.01.01.	Power		10mW						
	Resistance		16bit	42.14					
leadback	Voltage	1 m ¹		10mV					
esolution	Current	0.1mA	0.1mA	1mA					
occidion	Power		10mW						
	Voltage	±(0.025%+0.		±(0.025%+0.025%FS)					
	Current	±(0.1%+0.1%FS)	±(0.05%+0.05%FS)	±(0.05%+0.05%FS)					
et accuracy	Power*3		0.2%+0.2%FS						
	Resistance *1	0.01%+0	.08S * ²	0.01%+0.0008\$					
) a a alla a al .	Voltage		±(0.025%+0.025%FS)						
eadback	Current	±(0.1%+0.1%FS)							
ccuracy	Power	·	±(0.2%+0.2%FS)						
et temperature drift efficient(% of	Voltage		≤30ppm/°C +20ppm/°C *FS						
efficient(%of utput/C+Offset)	Current		≤50ppm/°C + 20ppm/°C *FS						
eadback Temperature	Voltage		≤30ppm/°C + 20ppm/°C*FS						
ift coefficient((% of utput/ C +Offset)	Current		≤50ppm/°C +20ppm/°C *FS						
utput/ C+Oliset)	Rising *4	0.0001∼0.02A/µs		0.001∼2A/µs					
h mamia	Falling*4	0.0001~0.02A/μs 0.0001~0.02A/μs	0.0001 ~ 0.2A/μs 0.0001 ~ 0.2A/μs	0.001 ~ 2A/μs 0.001 ~ 2A/μs					
)ynamic	Min.rising time*5	0.0001 × 0.02A/μs	·	· ·					
esponse	•	→ 10μs	≒10µs	≒10µs					
	Dynamic frequency		0.001 ~ 20kHz						
	Voltage		110V ±10% or 220V ±10%						
C parameter	Frequency	50/60Hz 0.3A							
o parameter	lmax.								
	Power factor		≥0.99						
et stability-30min(%	Voltage	±(0.02%+0.029	· ·	±(0.02%+0.02%FS)					
Output/ C+Offset)	Current	±(0.05%+0.08%FS)	±(0.03%+0.03%FS)	±(0.03%+0.03%FS)					
et stability-8h(%of	Voltage		1						
utput/ ℃ +Offset)	Current	1		/					
adback stability-30min	Voltage	1	±(0.02%+0.02%FS)	1					
of Output/ C+Offset)	Current	±(0.05%+0.08%FS)	1	/					
eadback stability-8h	Voltage		1						
of Output/°C +Offset)	Current		1						
ense voltage									
orage temperature			-20 °C ∼70 °C						
5 p	OPP	125W	510W	510W					
	OCP	0.33A	3.3A	33A					
rotection	OVP	0.55A 63\		630V					
	OTP	031	85°C	000 V					
terfaces*6	OII		LAN, USB, RS232						
lation(output to ground)			500V/DC/1mA						
plation(input to ground)			1.5KV/AC/5mA						
nits parallel connected			≤16(channel)						
rotection level			IP20						
afety regulation			IEC 61010						
ooling			fan						
orking temperature			0~40℃						
Dimension(mm)			82mm*183mm*573mm						
۱.W.			5kg						

^{*1} Input voltage/current is not less than 10%FS (FS is full scale)

^{*2} Range of resistance readback value: (1/(1/R+(1/R)*0.01%+0.08),1/(1/R-(1/R)*0.01%-0.08))

 $^{^{*}3}$ Input voltage/current is not less than 10%FS

^{*4} Rise/fall slew rate: 10%~90% of current rising from 0 to Max.current

^{*5} Minimum rise time: 10%~90% of current rise time

^{*6} Each module does not have a separate communication interface and can be controlled through the host frame interface

Para	meter			IT8732BP+				
	Voltage		0.1~60V		0.1~600V			
	Current	0∼0.3A	0.1 001	0~3A	0~20A			
	Power	0∼120W		0 0/1	0~300W			
Rated value	Resistance		0.2Ω \sim 10Ω		$10\Omega\!\sim\!7500\Omega$			
ialeu value	Min. resistance	≒500mΩ			≔180mΩ			
	MOV	0.15V at 0.3A		0.54V at 3A	3.6V at 20A			
	Input leak current	0.10V at 0.5A	0.06mA	0.04V at 0A	0.7mA			
	Voltage		1mV		10mV			
	Current	0.1mA	11111	0.1mA	10mA			
Set resolution	Power	U. IIIA		10mW	IVIIIA			
	Resistance			16bit				
	Voltage		1 mV	TODIL	10mV			
Readback	Current	0.1mA	I IIIV	0.1mA	1mA			
esolution	Power	U. IIIIA			IIIIA			
		/0	0050/ 00050/5	10mW	(0.0050/_0.0050/_50)			
	Voltage	,	0.025%+0.025%F	·	±(0.025%+0.025%FS)			
ot occursos.	Current	±(0.1%+0.1%FS)		±(0.05%+0.05%FS)	±(0.05%+0.05%FS)			
et accuracy	Power *3			0.2%+0.2%FS	0.04% 0.0000			
	Resistance*1		0.01%+0.08S *2	(0.00=0) 0.00=0(=0)	0.01%+0.0008S			
Readback	Voltage	(0.10/.0.10/.50)		±(0.025%+0.025%FS)	(0.070/0.070/70)			
occuracy	Current	±(0.1%+0.1%FS)			±(0.05%+0.05%FS)			
et temperature drift	Power			±(0.2%+0.2%FS)				
pefficient(%of	Voltage			≤30ppm/°C + 20ppm/°C*FS				
utput/ C +Offset)	Current			≤50ppm/°C + 20ppm/°C*FS				
eadback Temperature ift coefficient((% of	Voltage			\leq 30ppm/°C + 20ppm/°C*FS				
utput/ C+Offset)	Current			≤50ppm/°C + 20ppm/°C*FS				
	Rising *4	0.0001 ∼ 0.02A/μs		0.0001∼0.2A/µs	0.001 ~2A/µs			
ynamic	Falling*4	0.0001 ∼ 0.02A/μs		0.0001∼0.2A/µs	0.001 ~ 2A/µs			
esponse	Min.rising time*5	≒10μs		≒ 10μs	≒10µs			
	Dynamic frequency	0.001~20kHz						
	Voltage			110V ±10% or 220V ±10%				
0	Frequency	50/60Hz						
C parameter	Imax.			0.3A				
	Power factor			1				
et stability-30min(%	Voltage	±(0.0	2%+0.02%FS)		±(0.02%+0.02%FS)			
Output/°C+Offset)	Current	±(0.05%+0.08%FS)		±(0.03%+0.03%FS)	±(0.03%+0.03%FS)			
et stability-8h(%of	Voltage		/		1			
utput/°C+Offset)	Current	/		/	1			
adback stability-30min	Voltage			±(0.02%+0.02%FS)				
of Output/ C+Offset)	Current	±(0.05%+0.08%FS)		,	±(0.03%+0.03%FS)			
adback stability-8h	Voltage	,		1	_(,			
of Output/ C+Offset)	Current	/			/			
Sense voltage				≤2V				
torage temperature				-20°C∼70°C				
	OPP	125W		310W	310W			
	OCP	0.33A		3.3A	22A			
rotection	OVP	0.00A	63V	J.JA	630V			
	OTP		004	85°C	000 V			
nterfaces*6	311			LAN, USB, RS232				
plation(output to ground)				500V/DC/1mA				
olation(output to ground)				1.5KV/AC/5mA				
nits parallel connected				≤16(channel)				
rotection level				IP20				
Safety regulation				IEC 61010				
Cooling				fan				
Working temperature				0∼40°C				
Dimension(mm)				82mm*183mm*573mm				
N.W.				5kg				

^{*1} Input voltage/current is not less than 10%FS (FS is full scale)

^{*2} Range of resistance readback value: (1/(1/R+(1/R)*0.01%+0.08),1/(1/R-(1/R)*0.01%-0.08))

^{*3} Input voltage/current is not less than 10%FS

^{*4} Rise/fall slew rate: 10%~90% of current rising from 0 to Max.current

^{*5} Minimum rise time: 10%~90% of current rise time

^{*6} Each module does not have a separate communication interface and can be controlled through the host frame interface

IT8700P+ High Speed Multi-channel DC Electronic Load

Para	meter			IT8721P+				
	Voltage		0.1~18\	/		0.1~150V		
	Current	0∼0.6A		0~3A		0~20A		
	Power	0∼30W		J 0	0~150W			
Data di valva	Resistance	0 - 30 0 0	0.05Ω~10	$\Omega\Omega$	$10\Omega\sim7500\Omega$			
Rated value	Min. resistance	≒100mΩ	0.0022		÷20mΩ			
	MOV	0.09V at 0.6A		0.09V at 3A	0.6V at 20A			
			0.00 4	0.09V at 3A				
	Input leak current		0.06mA			0.2mA		
	Voltage	0.4. A	1mV	0.4.4		10mV		
Set resolution	Current	0.1mA		0.1mA	1mA			
Jet resolution	Power			10mW				
	Resistance			16bit				
Readback	Voltage		0.1mV			1mV		
esolution	Current	0.1mA		0.1mA		1mA		
esolution	Power			10mW				
	Voltage		±(0.025%+0.02	25%FS)		±(0.025%+0.025%FS)		
	Current	±(0.1%+0.1%FS)		±(0.05%+0.05%FS)		±(0.05%+0.05%FS)		
et accuracy	Power *3			0.2%+0.2%FS				
,	Resistance*1		0.01%+0.08	S*2		0.01%+0.0008S		
	Voltage			±(0.025%+0.025%FS)				
Readback	Current	±(0.1%+0.1%FS)		_(:::=:,::::::::::::::::::::::::::::::::	±(0.05%+0.05%FS)		
accuracy	Power	_(-1.70.01.701.0)		±(0.2%+0.2%FS)	=(0.007010.007010	,		
et temperature drift	Voltage			±(0.2%+0.2%F3) ≤50ppm/°C + 50ppm/°C*FS				
oefficient(% of Output/ C +Offset)	•			* * * * * * * * * * * * * * * * * * * *				
	Current			≤50ppm/°C + 50ppm/°C*FS				
eadback Temperature rift coefficient((% of	Voltage			≤50ppm/°C + 50ppm/°C*FS				
output/ C+Offset)	Current			≤50ppm/°C + 50ppm/°C*FS				
	Rising	0.0001∼0.06A/µs		0.0001∼0.3A/µs		0.001∼2A/µs		
Dynamic	Falling	0.0001∼0.06A/µs		0.0001∼0.3A/µs		0.001∼2A/µs		
esponse *4	Min.rising time*5	≒ 10μs		≑ 10μs		≒ 10μs		
	Dynamic frequency			0.001∼20kHz				
	Voltage			110V ±10%or220V ±10%				
	Frequency			50/60Hz				
AC parameter	Imax.			0.3A				
	Power factor			/				
et stability-30min(%	Voltage		+(0.02%-	+0.02%FS)		±(0.02%+0.02%FS)		
f Output/ C +Offset)	Current	±(0.05%+0.08%FS)	=(0.0270	±(0.03%+0.03%FS)		±(0.03%+0.03%FS)		
et stability-8h(% of	Voltage	_(0.00711.000711.07		/		_(,		
Output/ C+Offset)	Current	1		,		1		
eadback stability-30min		,		±(0.02%+0.02%FS)		,		
of Output/ C+Offset)	Voltage	±(0.05%+0.08%FS)		±(0.02%+0.02%F3)	(0.000/ 0.000/E0)			
	Current	±(0.03 /0+0.00 /01 3)		,	±(0.03%+0.03%FS))		
eadback stability-8h	Voltage	,		1				
% of Output/ C +Offset)	Current	/		-11	/			
Sense voltage				≤2V				
Storage temperature				-20°C∼70°C				
	OPP	33W		165W		165W		
Protection	OCP	0.66A		3.3A		22A		
TOLECTION	OVP			18.5V		155V		
	OTP			85°C				
nterfaces*6				LAN, USB, RS232				
solation(output to ground)				500V/DC/1mA				
solation(input to ground)				1.5KV/AC/5mA				
				≤16(channel)				
Inits parallel connected				≤ ro(channer)				
Protection level								
Safety regulation				IEC 61010				
Cooling				fan				
Working temperature				0∼40°C				
Dimension(mm)				82mm*183mm*573mm				
N.W.				5kg				

^{*1} Input voltage/current is not less than 10%FS (FS is full scale)

^{*2} Range of resistance readback value: (1/(1/R+(1/R)*0.01%+0.08),1/(1/R-(1/R)*0.01%-0.08))

^{*3} Input voltage/current is not less than 10%FS

^{*4} The loading current is not less than 2%FS

^{*5} Minimum rise time: 10%~90% of current rise time

^{*6} Each module does not have a separate communication interface and can be controlled through the host frame interface

Pure					IT8722P+				
Current		Voltage		0.1~18V		0.1~150V			
Power			0~0.6A	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	0~3A				
Resistance					0 0/1				
Min. resistance \$0.000	Rated value	Resistance	0 4000	$0.05\Omega\sim10\Omega$					
Input leak current	i latea value	Min. resistance	≒80mΩ			≒20mΩ			
Input leak current 0.06mA					0.05V at 3A				
Voltage		Input leak current		0.06mA					
Current O.1mA O.1mA O.1mA ImA Power Power O.1mP Power O.1mP O.1mP Power O.1mP O.1				1mV					
Set resolution Power Power 10mW 1			0.1mA		0.1mA				
Peadback Cournet 0.1mA	Set resolution								
Peedudon Power		Resistance			16bit				
Current 0.1mA 0.1mA 1mA 1	Daadhaal	Voltage		0.1mV		1mV			
Power			0.1mA		0.1mA	1mA			
Set accuracy Power	resolution	Power			10mW				
Set accuracy Power		Voltage		±(0.025%+0.025%	FS)	±(0.025%+0.025%FS)			
Reachack Power Resistance 1									
Peadback accuracy	Set accuracy	Power*3	,		,	,			
Peadback Current	,			0.01%+0.08S*		0.01%+0.0008S			
Current ±(0.1%+0.1%FS)									
Power #(0.2%+0.2%+5)			±(0.1%+0.1%FS)		, , , , , , , , , , , , , , , , , , , ,	±(0.05%+0.05%FS)			
Set Interpretative of the Control of Contr	accuracy		, , , , , , , , , , , , , , , , , , , ,		±(0.2%+0.2%FS)	· · · · · · · · · · · · · · · · · · ·			
Solution College Current Solution College Solution College Solution Current Solution College Current Solution Current Solutio	Set temperature drift	Voltage			,				
Moltage S0ppm/°C + 50ppm/°C	oefficient(%) of Output/C+Offset)								
Introduction(% of	Readback Temperature	Voltage							
Rising 4	Irift coefficient((% of Output/ C +Offset)	•							
Palling Pal	,		0.0001~0.06A/us			0.001~2A/us			
Min.rising time*s \$\phi_10\ps \$\phi_1	Ovnamic	•							
Dynamic frequency	•					≒10us			
Voltage	Соронос	Dynamic frequency	•		· ·				
AC parameter					110V ±10%or220V ±10%				
Imax		_							
Power factor	AC parameter				0.3A				
## Country of Country		Power factor							
### foutput/C+Offset) Current	Set stability-30min(%	Voltage	±	(0.02%+0.02%FS)		±(0.02%+0.02%FS)			
Output/ C + Offset) Current / / eachback stability-90min √of Output/ C + Offset) Voltage ±(0.05%+0.08%FS) Current ±(0.05%+0.08%FS) ±(0.03%+0.03%FS) eachback stability-8h √of Output/ C + Offset) Voltage / Sense voltage ≤ 2V Storage temperature OCP 52.8W 275W 275W Protection OCP 0.66A 3.3A 22A OVP 18.5V 90°C Interfaces '6 solation(output to ground) 500V/DC/1mA solation(nutput to ground) 1.5KV/AC/5mA Units parallel connected ≤ 16(channel) Protection level IP20 Safety regulation IEC 61010 Cooling fan Working temperature 0~40°C Dimension(mm) 82mm*183mm*573mm	of Output/ C +Offset)	Current	±(0.05%+0.08%FS)	`	±(0.03%+0.03%FS)	` '			
Output/ C + Offset) Current / / veadback stability-90min voor for Output/ C + Offset) Voltage ±(0.05%+0.08%FS) Current ±(0.05%+0.08%FS) ±(0.03%+0.03%FS) deadback stability-8h voor current Voltage / Voltage / / Current / / Sense voltage ≤ 2V Storage temperature -20°C ~70°C OCP 0.66A 3.3A 22A OVP 18.5V 90°C Interfaces '6 solation(output to ground) 500V/DC/1mA solation(nutput to ground) 500V/DC/1mA solation(input to ground) ≤ 16(channel) Protection level P20 Safety regulation IEC 61010 Cooling fan Working temperature 0~40°C Dimension(mm) 82mm*183mm*573mm	Set stability-8h(%of		,	/	,	, ,			
%of Output/ C + Offset) Current ±(0.05%+0.08%FS) ±(0.03%+0.03%FS) leadback stability-8h %of Output/ C + Offset) Voltage / Korner voltage Sense voltage ≤ 2V Storage temperature -20°C ~ 70°C Protection OPP 52.8W 275W OCP 0.66A 3.3A 22A OVP 18.5V 155V OTP 90°C LAN, USB, RS232 solation(output to ground) 500V/DC/1mA solation(put to ground) 1,5KV/AC/5mA Units parallel connected ≥16(channel) Protection level IP20 Safety regulation IEC 61010 Cooling fan Working temperature 0~40°C Dimension(mm) 82mm*183mm*573mm	Output/°C+Offset)	_	/		/	/			
X ₀ of Output/ C + Offset) Current ±(0.05%+0.08%FS) ±(0.03%+0.03%FS) leadback stability-8h V ₀ of Output/ C + Offset) Voltage / V ₀ of Output/ C + Offset) / / Sense voltage Storage temperature ≤2V Protection OPP 52.8W 275W Protection OCP OVP 0.66A 3.3A 22A OVP OTP 90°C LAN, USB, RS232 solation(output to ground) 500V/DC/1mA solation(input to ground) 1.5KV/AC/5mA Units parallel connected Protection level Safety regulation EC 61010 Cooling Working temperature 0~40°C Dimension(mm) 82mm*183mm*573mm	eadback stability-30min	Voltage			±(0.02%+0.02%FS)				
Voltage	% of Output/ C+Offset)	_	±(0.05%+0.08%FS)			±(0.03%+0.03%FS)			
Current	Readback stability-8h	Voltage				· ,			
Protection Pr	% of Output/ C+Offset)		1			/			
Protection OPP	Sense voltage				≤2V				
Protection OCP OVP OVP OVP OVP OVP OVP OVP OVP OVP OV	Storage temperature				-20°C∼70°C				
Protection OCP OVP OVP OVP OVP OVP OVP OVP OVP OVP OV		OPP	52.8W		275W	275W			
OVP OTP 18.5V 155V OVP OTP 90°C Interfaces*6 LAN, USB, RS232 solation(output to ground) 500V/DC/1 mA solation(input to ground) 1.5KV/AC/5 mA Units parallel connected ≤ 16(channel) Protection level IP20 Safety regulation IEC 61010 Cooling fan Working temperature 0~40°C Dimension(mm) 82mm*183mm*573mm	Protoction	OCP							
OTP 90°C Interfaces*6 LAN, USB, RS232 solation(output to ground) 500V/DC/1rmA Juits parallel connected ≤ 16(channel) Protection level IP20 Safety regulation IEC 61010 Cooling fan Working temperature 0~40°C Dimension(mm) 82mm*183mm*573mm	TIOLECTION			18.5V					
Interfaces*6 LAN, USB, RS232 solation(output to ground) 500V/DC/1 mA solation(input to ground) 1.5KV/AC/5 mA Jnits parallel connected ≤ 16(channel) Protection level IP20 Safety regulation IEC 61010 Cooling fan Working temperature 0~40°C Dimension(mm) 82mm*183mm*573mm					90°C				
500V/DC/1mA	nterfaces*6								
solation(input to ground) 1.5KV/AC/5mA Units parallel connected ≤ 16(channel) Protection level IP20 Safety regulation IEC 61010 Cooling fan Working temperature 0~40°C Dimension(mm) 82mm*183mm*573mm									
Units parallel connected ≤ 16(channel) Protection level IP20 Safety regulation IEC 61010 Cooling fan Working temperature 0~40°C Dimension(mm) 82mm*183mm*573mm	,								
Protection level IP20 Safety regulation IEC 61010 Cooling fan Working temperature 0∼40°C Dimension(mm) 82mm*183mm*573mm									
Safety regulation IEC 61010 Cooling fan Working temperature 0~40°C Dimension(mm) 82mm*183mm*573mm									
Cooling fan Working temperature 0~40°C Dimension(mm) 82mm*183mm*573mm									
Working temperature 0~40°C Dimension(mm) 82mm*183mm*573mm	, ,								
Dimension(mm) 82mm*183mm*573mm									
	- '								
	N.W.				5kg				

 $^{^{\}star}1$ Input voltage/current is not less than 10%FS (FS is full scale)

^{*2} Range of resistance readback value: (1/(1/R+(1/R)*0.01%+0.08),1/(1/R-(1/R)*0.01%-0.08))

^{*3} Input voltage/current is not less than 10%FS

 $^{^{*}4}$ Rise/fall slew rate: 10%~90% of current rising from 0 to Max.current

^{*5} Minimum rise time: 10%~90% of current rise time

^{*6} Each module does not have a separate communication interface and can be controlled through the host frame interface

				IT8731P+			
	Voltage		0.1~18V		0.1~150V		
	Current	0∼0.8A		0~4A	0~40A		
	Power	0~60W		J 111	0~300W		
Rated value	Resistance	0 - 0044	$0.05\Omega\sim10\Omega$		10Ω~7500Ω		
ialeu value	Min. resistance	≒75mΩ			≒20mΩ		
	MOV	0.06V at 0.8A		0.08V at 4A	0.8V at 40A		
	Input leak current	0.007 0.007	0.06mA	0.007 at 171	0.3mA		
	Voltage		1mV		10mV		
	Current	0.1mA		0.1mA	10mA		
Set resolution	Power	0.11111		10mW	101101		
	Resistance			16bit			
	Voltage		0.1 mV	10010	1mV		
Readback	Current	0.1mA	0.7.11.1	0.1mA	1mA		
resolution	Power	O. HILA		10mW	1110 (
	Voltage		±(0.025%+0.025%		±(0.025%+0.025%f	EQ)	
	Current	±(0.1%+0.1%FS)	1(0.023/0+0.023/0	±(0.05%+0.05%FS)	±(0.05%+0.05%F		
Set accuracy	Power*3	±(0.170+0.17013)		0.2%+0.2%FS	±(0.05/0+0.05/01	3)	
201 accuracy	Resistance *1		0.01%+0.08S		0.01%+0.0008	35	
	Voltage		0.01/0+0.003	±(0.025%+0.025%FS)	0.01/0+0.0000	,0	
Readback	Current			±(0.05%+0.05%FS)			
accuracy	Power						
Set temperature drift	Voltage			±(0.2%+0.2%FS) ≤50ppm/°C + 50ppm/°C*FS			
coefficient(% of Output/ C +Offset)	Current						
Readback Temperature	Voltage						
Irift coefficient((% of Dutput/ C +Offset)	Current			≤50ppm/°C + 50ppm/°C*FS			
Output/ C+Offset)	Rising *4	0.0004 - 0.004/		≤50ppm/°C + 50ppm/°C*FS	0.004 - 44/		
	Falling*4	0.0001∼0.08A/µs		0.0001~0.4A/µs	0.001∼4A/µs 0.001∼4A/µs		
Dynamic	Min.rising time*5	0.0001∼0.08A/μs ÷10		0.0001∼0.4A/µs	· ·		
response	Ü	≒10μs		≒10μs	≒ 10μs		
	Dynamic frequency			0.001~20kHz			
	Voltage	110V ±10%or220V ±10%					
AC parameter	Frequency			50/60Hz			
·	Imax. Power factor			0.3A			
			· (0.000/ · 0.000/ F0)	/	/0.000/ 0.000/F	0)	
Set stability-30min(%	Voltage		±(0.02%+0.02%FS)	(0.000/ 0.000/50)	±(0.02%+0.02%F)	,	
of Output/ C+Offset)	Current	±(0.05%+0.08%FS)	1	±(0.03%+0.03%FS)	±(0.03%+0.03%F	-8)	
	Voltage	1	1	1	/		
Output/ C +Offset) leadback stability-30min	Current	<i>1</i>		/0.000/ .0.000/ E0\	1		
of Output/ C+Offset)	Voltage	./O.0E0/ .O.000/ EQ\		±(0.02%+0.02%FS)	(0.000) 0.000(50)		
leadback stability-8h	Current	±(0.05%+0.08%FS)			±(0.03%+0.03%FS)		
% of Output/ C+Offset)	Voltage Current	1			1		
Sense voltage	Current	,		≤2V	,		
Storage temperature				-20°C∼70°C			
otorage temperature	OPP	OFIN			04014		
		65W		210W	210W		
Protection	OCP OVP	0.88A	18.5V	4.4A	44A 155V		
	OTP		10.57	0500	1557		
nterfaces*6	OIF			85°C			
				LAN, USB, RS232			
solation(output to ground)				500V/DC/1mA			
solation(input to ground)				1.5KV/AC/5mA			
Units parallel connected				≤16(channel)			
Protection level				IP20			
Safety regulation				IEC 61010			
Cooling				fan			
Working temperature				0~40°C			
Dimension(mm) N.W.				82mm*183mm*573mm			
				5kg			

^{*1} Input voltage/current is not less than 10%FS (FS is full scale)

^{*2} Range of resistance readback value: (1/(1/R+(1/R)*0.01%+0.08),1/(1/R-(1/R)*0.01%-0.08))

^{*3} Input voltage/current is not less than 10%FS

^{*4} Rise/fall slew rate: 10%~90% of current rising from 0 to Max.current

^{*5} Minimum rise time: 10%~90% of current rise time

^{*6} Each module does not have a separate communication interface and can be controlled through the host frame interface



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