

### DECKBLATT ZUM ORIGINAL-DOKUMENT DES HERSTELLERS

# ITECH | PRODUKT-KATALOG

**HERSTELLER** ITECH Electronic Co Ltd.

**PRODUKTSERIE** IT8700P-Serie

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High Speed Multi-channel DC Electronic Load



Your Power Testing Solution

# ITECH

# 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 the current rising and falling slope of a single module can reach 12A/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, the current rising and falling slope of a single module can reach 12A/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

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

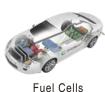
- Compatible with IT8700P mainframe, old and new modules can be matched
- Short-circuit peak current measurement function
- Available front/rear terminals\*1
- 8 operating modes: CC/ CV/ CR/ CW/ CV+CC/ CR+ CC/ CW+CC/ CV+CR (CR-LED)
- Automatic test function to tell whether the test results exceed the set specifications
- Built-in LAN, USB, RS232 interfaces\*2
- CV loop speed is adjustable to match different DUTs
- Multi channel synchronous control
  - \*1 Current is no more than 15A if connecting with front terminals
  - \*2 Models with (G) includes GPIB, please consult ITECH for details.

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 It is a dual-channel dynamic power distribution module. The parameters of the two channels are the same. The maximum power of a single channel is 250W. The total power of the two channels is not more than 300W. The average power of a single channel is 150W.
- \*2 is a dual-channel dynamic power distribution module. The parameters of the two channels are the same. The maximum power of a single channel is 150W. The total power of the two channels is not more than 200W. The average power of a single channel is 100W.

### Applications







**Batteries** 



Communication 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

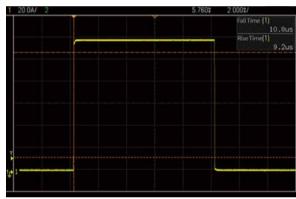
The IT8700P+ series is designed with removable modules, so that you can choose different modules according to your needs. These modules can work with the original IT8700P series modules too. There are high-performance microprocessor chips in each load module and mainframe. Parallel architecture is adopted 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 rising and falling slope of a single module can reach 12A/ $\mu$ s, 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

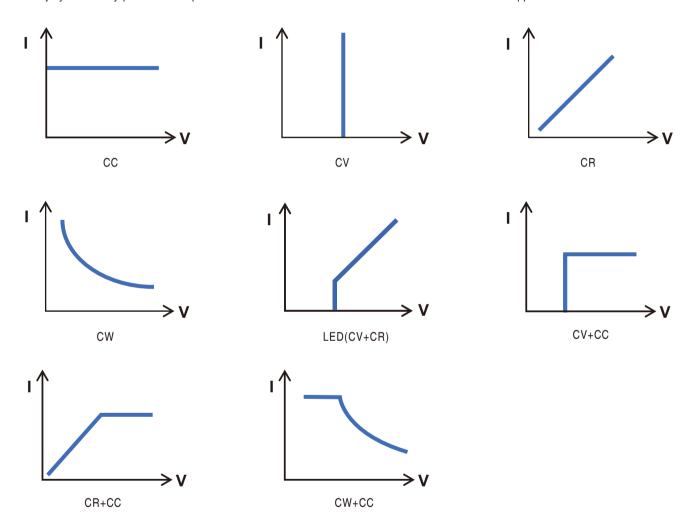
The voltage and current measurement of IT8700P+ is fast (up to 250kHz). It can be applied to various testing applications such as charging piles, automotive electronics; renewable energy and so on.



# IT8700P+ High Speed Multi-channel DC Electronic Load

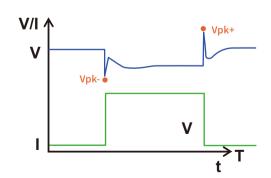
### 8 operation modes

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			IT8721P+		
	Voltage		0.1~18V			0.1~150V
	Current	0∼0.6A	0	0∼3A		0~20A
	Power	0~30W		0 0/1	0~150W *7	0 20/1
Datadoulos	Resistance		$0.05\Omega\sim10\Omega$		0~130VV	10Ω~7500Ω
Rated value	Min. resistance	⇒100mΩ			⇒20mΩ	1012 100012
	MOV	0.09V at 0.6A		0.09V at 3A	2011142	0.6V at 20A
	Input leak current		0.06mA	0.03 V at 3A		0.2mA
	Voltage		1mV			0.2mA 10mV
	•	0.1mA	IIIIV	0.1mA		1mA
Set resolution	Current Power	U. IIIIA		10mW		IIIIA
				16bit		
	Resistance Voltage		0.1mV	TODIL		1mV
Readback		0.1mA	U. IIIIV	0.1mA		1mA
resolution	Current	U. IIIIA				IIIIA
	Power	(0.6	0.50/ 0.0050/50	10mW		(0.0050) (0.0050) 50)
	Voltage	,	)25%+0.025%FS)			±(0.025%+0.025%FS)
<b>.</b>	Current	±(0.1%+0.1%FS)		±(0.05%+0.05%FS)		±(0.05%+0.05%FS)
Set accuracy	Power *3	0	010/ +0 000*2	0.2%+0.2%FS		0.040/ -0.00000
	Resistance*1	0.	.01%+0.08S*2	(0.0050/ 0.0050/50)		0.01%+0.0008S
Readback	Voltage	(0.10/0.10/.50)		±(0.025%+0.025%FS)	(2.250/ 0.250/50)	
	Current	±(0.1%+0.1%FS)		(0.00) 0.00°	±(0.05%+0.05%FS)	
accuracy	Power			±(0.2%+0.2%FS)		
Set temperature drift coefficient(% of	Voltage			≤50ppm/°C + 50ppm/°C*FS		
coefficient(% of Output/ C +Offset)	Current			≤50ppm/°C + 50ppm/°C*FS		
Readback Temperature drift 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
response *4	Min.rising time*5	<b>≒</b> 10μs		<b>≒</b> 10μs		<b>≒</b> 10μs
·	Dynamic frequency	1		0.001~20kHz		
	Voltage			110V ±10%or220V ±10%		
AC parameter	Frequency			50/60Hz		
AC parameter	Imax.			0.3A		
	Power factor			/		
Set stability-30min( $\%$	Voltage		±(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)
Set stability-8h( $\%$ of	Voltage		/			1
Output/ C+Offset)	Current	1		/		/
Readback stability-30min	Voltage			±(0.02%+0.02%FS)		
(% of Output/ C+Offset)	Current	±(0.05%+0.08%FS)			±(0.03%+0.03%FS)	
Readback stability-8h	Voltage					
(%of Output/ C +Offset)	Current	1			1	
Sense voltage				≤2V		
Storage temperature				-20°C∼70°C		
	OPP	33W		165W		165W
Protection	OCP	0.66A		3.3A		22A
1 TOLOGION	OVP		18.5\			155V
	OTP			85°C		
Interfaces*6				LAN, USB, RS232		
Isolation(output to ground)				500V/DC/1mA		
Isolation(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		
N.W.				5kg		
				9		

<sup>\*1</sup> Input voltage/current is not less than 10%FS (FS is full scale)

<sup>\*2</sup> Range of resistance readback value: ( 1/(1/R+(1/R)\*0.01%+0.08),1/(1/R-(1/R)\*0.01%-0.08) )

<sup>\*3</sup> Input voltage/current is not less than 10%FS

<sup>\*4</sup> The loading current is not less than 2%FS

<sup>\*5</sup> Minimum rise time: 10%~90% of current rise time

<sup>\*6</sup> Each module does not have a separate communication interface and can be controlled through the host frame interface

<sup>\*7</sup> It is a dual-channel dynamic power distribution module. The parameters of the two channels are the same. The maximum output of a single channel is 150W. The total power of the dual channels is not more than 200W. The average power of a single channel is 100W.

			IT8731P+	
	Voltage		0.1~18V	0.1~150V
	Current	0~0.8A	0~4A	0~40A
	Power	0~60W	0 4/1	0~300W
Rated value	Resistance		$0.05\Omega\sim10\Omega$	10Ω~7500Ω
rated value	Min. resistance	≒75mΩ	1025	÷20mΩ
	MOV	0.06V at 0.8A	0.08V at 4A	2011N2 0.8V at 40A
		0.00V at 0.0A		
	Input leak current		0.06mA 1mV	0.3mA
	Voltage	0.4. A		10mV
Set resolution	Current	0.1mA	0.1mA	1mA
ot resolution	Power		10mW	
	Resistance		16bit	
Readback	Voltage		0.1 mV	1mV
esolution	Current	0.1mA	0.1mA	1mA
0001411011	Power		10mW	
	Voltage	±(0.02	25%+0.025%FS)	±(0.025%+0.025%FS)
	Current	±(0.1%+0.1%FS)	±(0.05%+0.05%FS)	±(0.05%+0.05%FS)
Set accuracy	Power*3		0.2%+0.2%FS	
	Resistance *1	0.0	01%+0.08S *2	0.01%+0.0008S
Jacobael:	Voltage		±(0.025%+0.025%FS)	
Readback	Current		±(0.05%+0.05%FS)	
accuracy	Power		±(0.2%+0.2%FS)	
et temperature drift	Voltage		≤50ppm/°C + 50ppm/°C*FS	
oefficient(% of Output/ C +Offset)	Current		≤50ppm/°C + 50ppm/°C*FS	
eadback Temperature	Voltage		≤50ppm/°C + 50ppm/°C*FS	
rift coefficient((% of Output/ C +Offset)	Current		≤50ppm/°C + 50ppm/°C*FS	
output C +Oliset)	Rising *4	0.0001∼0.08A/µs	0.0001∼0.4A/µs	0.001∼4A/µs
Dynamic	Falling*4	0.0001∼0.08A/µs	0.0001 ℃.474µs	0.001 → 4A/µs
,	Min.rising time*5	÷ 10μs	⇒10μs	·
esponse	Dynamic frequency	. τομο	0.001∼20kHz	<b>≒</b> 10μs
	Voltage		110V ±10%or220V ±10%	
	Frequency		50/60Hz	
C parameter	Imax.		0.3A	
•	Power factor		0.3A /	
-t -t-billt : 00i-/0/		. (0.000/	· · · · · · · · · · · · · · · · · · ·	· (0.000/ · 0.000/ F0)
et stability-30min(%	Voltage	(	%+0.02%FS)	±(0.02%+0.02%FS)
f Output/ C+Offset)	Current	±(0.05%+0.08%FS)	±(0.03%+0.03%FS)	±(0.03%+0.03%FS)
	Voltage	,	/	I I
utput/ C +Offset)	Current	1	(0.000/ 0.000/70)	I
eadback stability-30min of Output/*C+Offset)	Voltage	· (0.050/ · 0.000/ 50)	±(0.02%+0.02%FS)	,
	Current	±(0.05%+0.08%FS)	,	±(0.03%+0.03%FS)
eadback stability-8h	Voltage	,	1	
% of Output/°C+Offset)	Current	1		I
Sense voltage			≤2V	
Storage temperature			-20°C∼70°C	
	OPP	65W	210W	210W
Protection	OCP	0.88A	4.4A	44A
	OVP		18.5V	155V
	OTP		85°C	
nterfaces*6			LAN, USB, RS232	
colation(output to ground)			500V/DC/1mA	
solation(input to ground)			1.5KV/AC/5mA	
Inits parallel connected			≤16(channel)	
Protection level			IP20	
Safety regulation			IEC 61010	
Cooling			fan	
Working temperature			0∼40°C	
Dimension(mm)			82mm*183mm*573mm	
N.W.				
			5kg	

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

<sup>\*2</sup> Range of resistance readback value: ( 1/(1/R+(1/R)\*0.01%+0.08), 1/(1/R-(1/R)\*0.01%-0.08) )

<sup>\*3</sup> Input voltage/current is not less than 10%FS

<sup>\*4</sup> Rise/fall slew rate: 10%~90% of current rising from 0 to Max.current

<sup>\*5</sup> Minimum rise time: 10%~90% of current rise time

<sup>\*6</sup> Each module does not have a separate communication interface and can be controlled through the host frame interface

				IT8722P+		
	Voltage		0.1~18V			0.1~150V
	Current	0∼0.6A		0~3A		0~20A
	Power	0~48W			0~250W <sup>*7</sup>	
Rated value	Resistance	0 7011	0.05Ω~10Ω	2	2 20011	$10\Omega\sim7500\Omega$
ialeu value	Min. resistance	≒80mΩ			⇒20mΩ	
	MOV	0.05V at 0.6A		0.05V at 3A	· Lonnes	0.4V at 20A
	Input leak current	0.00 7 41 0.071	0.06mA	0.00 v at 0, t		0.2mA
	Voltage		1mV			10mV
	Current	0.1mA	11114	0.1mA		1mA
Set resolution	Power	U. IIIIA		10mW		IIIA
	Resistance			16bit		
	Voltage		0.1mV	TODIL		1mV
eadback	Current	0.1mA	0.1111	0.1mA		1mA
esolution		U. IIIIA				IIIIA
	Power		(0.0050/ .0.0050	10mW		(0.0050/ 0.0050/50)
	Voltage		(0.025%+0.025%	· · · · · · · · · · · · · · · · · · ·		±(0.025%+0.025%FS)
+ 000 mc	Current	±(0.1%+0.1%FS)		±(0.05%+0.05%FS)		±(0.05%+0.05%FS)
t accuracy	Power *3		0.040/ 0.055	0.2%+0.2%FS		0.040/ 0.0000
	Resistance *1		0.01%+0.08\$			0.01%+0.0008S
eadback	Voltage	(a. )		±(0.025%+0.025%FS)		
curacy	Current	±(0.1%+0.1%FS)			±(0.05%+0.05%FS)	
,	Power			±(0.2%+0.2%FS)		
t temperature drift efficient(%of	Voltage			$\leq$ 50ppm/°C + 50ppm/°C*FS		
tput/ C+Offset)	Current			$\leq$ 50ppm/°C + 50ppm/°C*FS		
adback Temperature t coefficient((% of	Voltage			≤50ppm/°C + 50ppm/°C*FS		
tput/ C+Offset)	Current			$\leq$ 50ppm/°C + 50ppm/°C*FS		
	Rising *4	0.0001∼0.06A/µs		0.0001∼0.3A/µs		0.001∼2A/µs
ynamic	Falling*4	0.0001∼0.06A/µs		0.0001∼0.3A/μs		0.001∼2A/µs
sponse	Min.rising time*5	≒10μs		<b>≒</b> 10μs		≒10μs
Sporioo	Dynamic frequency	·		0.001~20kHz		
	Voltage			110V ±10%or220V ±10%		
	Frequency			50/60Hz		
parameter	lmax.			0.3A		
	Power factor			/		
stability-30min(%	Voltage	±(0	.02%+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)
	Voltage	_(,	1	_(=,==,===,====,====,====,====,=====,=====		/
tput/°C+Offset)	Current	1				
dback stability-30min	Voltage			±(0.02%+0.02%FS)		
of Output/ C+Offset)	Current	±(0.05%+0.08%FS)		10.01/010.02/010)	±(0.03%+0.03%FS)	
dback stability-8h	Voltage	_(0.00 /0.00 /01 0)			±(0.0070±0.00701 0)	
of Output/ C+Offset)	Current	/		,	1	
ense voltage	Odifont	,		≤2V	,	
rage temperature				-20°C∼70°C		
nago tomperature	OPP	EO 014/				07514
	OCP	52.8W		275W		275W
otection	OVP	0.66A	18.5V	3.3A		22A
			18.57			155V
. *c	OTP			90°C		
erfaces*6				LAN, USB, RS232		
tion(output to ground)				500V/DC/1mA		
ation(input to ground)		1.5KV/AC/5mA				
its parallel connected				≤16(channel)		
rotection level				IP20		
afety regulation				IEC 61010		
ooling				fan		
orking temperature				0~40°C		
mension(mm)				82mm*183mm*573mm		
W.				5kg		
				ong		

<sup>\*1</sup> Input voltage/current is not less than 10%FS (FS is full scale)

 $<sup>^*2</sup>$  Range of resistance readback value: (  $1/(1/R+(1/R)^*0.01\%+0.08), 1/(1/R-(1/R)^*0.01\%-0.08)$  )

<sup>\*3</sup> Input voltage/current is not less than 10%FS

<sup>\*4</sup> Rise/fall slew rate: 10%~90% of current rising from 0 to Max.current

<sup>\*5</sup> Minimum rise time: 10%~90% of current rise time

<sup>\*6</sup> Each module does not have a separate communication interface and can be controlled through the host frame interface

<sup>\*7</sup> It is a dual-channel dynamic power distribution module. The parameters of the two channels are the same. The maximum output of a single channel is 250W. The total power of the dual channels is not more than 300W. The average power of a single channel is 150W.

Para	meter		IT8723P+				IT8732P+	
	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	0~3	00W	0∼96W		0~	400W
Rated value	Resistance	0.05Ω~	~ 10Ω	$0.05\Omega\!\sim\!7500\Omega$		$05\Omega\sim10\Omega$		$0.05\Omega \sim 7500\Omega$
i iaica vaiuc	Min. resistance	≒50mΩ		5mΩ	≒50mΩ		=	15mΩ
	MOV	0.06V at 0.9A	0.07V at 4.5A	0.7V at 45A	0.06V at 1.2A		0.05V at 6A	0.5V at 60A
	Input leak current	0.06	mA	0.2mA		0.06mA		0.2mA
	Voltage	1n		10mV		1mV		10mV
	Current	0.1mA	0.1mA	1mA	0.1mA		0.1mA	1mA
Set resolution	Power		10mW				10mW	
	Resistance		16bit				16bit	
	Voltage	0.1		1mV		0.1mV		1mV
Readback	Current	0.1mA	0.1mA	1mA	0.1mA		0.1mA	1mA
resolution	Power	0.1111/1	10mW	11101	0.1111/1		10mW	1117
		±(0.025%+0.0		±(0.025%+0.025%FS)	+(0.025	%+0.025%		±(0.025%+0.025%FS)
	Voltage	±(0.1%+0.1%FS)	±(0.05%+0.05%FS)	±(0.05%+0.05%FS)	±(0.1%+0.1%FS)		05%+0.05%FS)	±(0.05%+0.05%FS)
Cataaaaaaa	Current	±(0.170+0.17013)	0.2%+0.2%FS	±(0.05/0+0.05/01/5)	±(0.1 /0±0.1 /01 3)		0.2%+0.2%FS	±(0.03 /0+0.03 /01 3)
Set accuracy	Power *3	0.01%+0		0.040/ +0.00000	0.0	)1%+0.08S		0.040/ +0.00000
	Resistance*1			0.01%+0.0008S	0.0			0.01%+0.0008S
Readback	Voltage		±(0.025%+0.025%FS)	0E0/ EC\	1/0 10/ 10 10/ FO\	±(0.0)	25%+0.025%FS)	0 0E0/ EQ\
accuracy	Current	±(0.1%+0.1%FS)	±(0.05%+0	.05%F5)	±(0.1%+0.1%FS)		±(0.05%+	U.U5%FS)
•	Power		±(0.2%+0.2%FS)				(0.2%+0.2%FS)	
Set temperature drift coefficient(% of	Voltage		50ppm/C + 50ppm/C*FS				n/℃ + 50ppm/℃*F	
Output/ C+Offset)	Current		50ppm/°C + 50ppm/°C*FS	3	≤50ppm/°C +50ppm/°C*FS			
Readback Temperature drift coefficient((% of	Voltage		ppm/°C + 50ppm/°C*FS		≤50ppm/°C +50ppm/°C *FS			
Output/ C +Offset)	Current	≤5	50ppm/°C + 50ppm/°C*FS	3	≤50ppm/°C +50ppm/°C *FS			=S
	Rising	0.0001∼0.09A/µs	0.0001 ~ 0.45A/µs	0.001∼4.5A/µs	0.0001∼0.1A/µs		001 ∼0.5A/µs	0.001 ∼5A/µs
Dynamic	Falling	0.0001∼0.09A/µs	0.0001 ~ 0.45A/µs	0.001∼4.5A/μs	0.0001∼0.1A/µs	0.0	001 ∼ 0.5A/µs	0.001 ∼5A/µs
response *4	Min.rising time*5	≒10μs	≒10µs	≒10µs	≒10µs		≒10µs	≒10µs
	Dynamic frequency		0.001~20kHz			0.	.001∼20kHz	
	Voltage	1	10V ±10%or220V ±10%			110V ±10	0%or220V ±10%	
AC navamatar	Frequency		50/60Hz		50/60Hz			
AC parameter	Imax.		0.3A				0.3A	
	Power factor		≥0.99				≥0.99	
Set stability-30min(%	Voltage	±(0.02%+0.02	2%FS)	±(0.02%+0.02%FS)	±(0.02%	+0.02%FS	3)	±(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)	±(0.0	03%+0.03%FS)	±(0.03%+0.03%FS)
Set stability-8h(%of	Voltage		/					1
Output/ C+Offset)	Current		/		/			/
Readback stability-30min	Voltage		±(0.02%+0.02%FS)			±(0.02	2%+0.02%FS)	
% of Output/ C+Offset)	Current	±(0.05%+0.08%FS)	±(0.03%+0.	03%FS)	±(0.05%+0.08%FS	5)	±(0.03%+0	0.03%FS)
Readback stability-8h	Voltage				/			
% of Output/ C+Offset)	Current		/			1		
Sense voltage			≤2V				≤2V	
Storage temperature			-20 °C ∼70 °C				-20 °C ∼70 °C	
	OPP	66W	310W	310W	100W		410W	410W
Duata etia	OCP	0.99A	4.95A	49.5A	1.32A		6.6A	66A
Protection	OVP		.5V	155V		18.5V		85V
	OTP	10.	105°C	1001			95℃	
Interfaces*6			LAN, USB, RS232			LAN	I, USB, RS232	
Isolation(output to ground)			500V/DC/1mA				00V/DC/1mA	
Isolation(input to ground)			1.5KV/AC/5mA				5KV/AC/5mA	
Units parallel connected			≤16(channel)				≤16(channel)	
Protection level			IP20			_	IP20	
Safety regulation			IEC 61010				IEC 61010	
Cooling			fan				fan	
Cooling Working temperature			0~40°C				0~40°C	
		0/	2mm*183mm*573mm			g0mm <sup>2</sup>	*183mm*573mm	
Dimension(mm) N.W.		04				02111111		
IN VV			5kg				5kg	

<sup>\*1</sup> Input voltage/current is not less than 10%FS (FS is full scale)

<sup>\*2</sup> Range of resistance readback value: ( 1/(1/R+(1/R)\*0.01%+0.08),1/(1/R-(1/R)\*0.01%-0.08) )

<sup>\*3</sup> Input voltage/current is not less than 10%FS

<sup>\*4</sup> The loading current is not less than 2%FS

<sup>\*5</sup> Minimum rise time: 10%~90% of current rise time

<sup>\*6</sup> 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		IT8733P+			IT8722BP+		
	Voltage	0.1-	~18V	0.1~150V	0.	1~60V	0.1~600V	
	Current	0∼2.4A	0∼12A	0~120A	0∼0.3A	0∼3A	0~15A	
	Power	0∼120W		-600W	0~120W	0	~250W *7	
Rated value	Resistance	0.05Ω		10Ω~7500Ω		$\Omega \sim$ 10 $\Omega$	$0.05\Omega\!\sim\!7500\Omega$	
Min. resistance		⇒50mΩ		:13mΩ	≔400mΩ		=200mΩ	
	MOV	0.12V at 2.4A	0.15V at 12A	1.5V at 120A	0.12V at 0.3A	0.6V at 3A	3V at 15A	
	Input leak current	0.06		0.3mA		0.0 V at 0.1	0.7mA	
	Voltage		nV			1mV	10mV	
	Current	0.1mA	1mA	10mV 10mA	0.1mA	0.1mA	1mA	
Set resolution		U. IIIIA	10mW	TOTTA	O. IIIIA	10mW	IIIIA	
001.000.01.01.	Power					16bit		
	Resistance	0.4	16bit 1 mV	1.00\/		1mV	10mV	
Readback	Voltage			1mV	0.4			
resolution	Current	0.1mA	0.1mA	1mA	0.1mA	0.1mA	1mA	
	Power		10mW			10mW	/··	
	Voltage	±(0.025%+0		±(0.025%+0.025%FS)	,	+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%+0.05%FS)	±(0.05%+0.05%FS)	
Set accuracy	Power *3		0.2%+0.2%FS			0.2%+0.2%FS		
	Resistance*1	0.01%+0	0.08S*2	0.01%+0.0008S	0.01%	+0.08S*2	0.01%+0.0008S	
Doodback	Voltage		±(0.025%+0.025%FS)			±(0.025%+0.025%FS)		
Readback	Current	±(0.1%+0.1%FS)	±(0.05%+	·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	≤50	ppm/°C + 50ppm/°C*FS		≤	30ppm/℃ + 50ppm/℃*F	3	
coefficient(% of Output/ C +Offset)	Current	≤50	ppm/°C + 50ppm/°C*FS		≤	50ppm/°C + 50ppm/°C *F	3	
Readback Temperature	Voltage		ppm/°C + 50ppm/°C*FS		≤30ppm/°C +50ppm/°C*FS			
drift coefficient((% of Output/ C +Offset)	Current		ppm/°C + 50ppm/°C*FS		≤50ppm/°C + 50ppm/°C*FS			
output a romoti,	Rising *4	0.0001~0.24A/µs	0.0001~1.2A/µs	0.001~12A/µs	0.0001∼0.03A/µs	0.0001∼0.3A/µs	0.001 ∼ 1.5A/µs	
Dynamic	Falling*4	0.0001~0.24A/µs	0.0001~1.2A/µs	0.001~12A/µs	0.0001 ~ 0.03A/us	0.0001 ~ 0.3A/µs	0.001 ~ 1.5A/µs	
•	Min.rising time*5	÷10μs	⇒10μs	⇒10μs	≒10μs	≒10µs	≒10µs	
response	Dynamic frequency	. τομο	0.001~20kHz	→ 10μ5	1040	0.001~20kHz	• τομο	
	Voltage	1.	10V ±10%or220V ±10%		110V ±10% or 220V ±10%			
	Frequency	'	50/60Hz			50/60Hz	,	
AC parameter	Imax.		0.3A		0.3A			
·	Power factor					U.SA		
0-4-4-1-114-00-1-10/		. (0.000/ . 0.00	≥ 0.99	· (0.000/ · 0.000/ E0)		/0.000/ +0.000/ FC\		
Set stability-30min(%	Voltage	±(0.02%+0.02	,	±(0.02%+0.02%FS)	. (0.0F0/ . 0.000/ FC)	±(0.02%+0.02%FS)	. (0.000/ . 0.000/ FC)	
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	1	1	1	
Output/ C +Offset)	Current	I	/	/	1	/	1	
Readback stability-30min	Voltage		±(0.02%+0.02%FS)		(0.050/ 0.000/50)	±(0.02%+0.02%FS)		
% of Output/ C +Offset)	Current	±(0.05%+0.08%FS)	±(0.03%+	0.03%FS)	±(0.05%+0.08%FS)	±(0.03%+	+0.03%FS)	
Readback stability-8h	Voltage	,	/		,	/		
% of Output/ C +Offset)	Current	1		1	/		1	
Sense voltage			≤2V			≤2V		
Storage temperature			-20°C∼70°C			-20°C ∼70°C		
	OPP	125W	610W	610W	132W	275W	275W	
Protection	OCP	2.64A	13.2A	132A	0.33A	3.3A	16.5A	
1 1010011011	OVP	18	3.5V	155V	•	63V	630V	
	OTP		105°C			90℃		
Interfaces*6			LAN, USB, RS232			LAN, USB, RS232		
Isolation(output to ground)		500V/DC/1mA				500V/DC/1mA		
Isolation(input to ground)		1.5KV/AC/5mA			1.5KV/AC/5mA			
Units parallel connected		≤16(channel)				≤16(channel)		
Protection level		≤ ro(channer)				IP20		
Safety regulation			IEC 61010			IEC 61010		
Cooling			fan			fan		
Working temperature			0~40°C			0~40℃		
Dimension(mm)			82mm*183mm*573m	m		82mm*183mm*573mm		
. ,				III				
N.W.			5kg			5kg		

<sup>\*1</sup> Input voltage/current is not less than 10%FS (FS is full scale)

 $<sup>^*</sup>$ 2 Range of resistance readback value: (  $1/(1/R+(1/R)^*0.01\%+0.08), 1/(1/R-(1/R)^*0.01\%-0.08)$  )

<sup>\*3</sup> Input voltage/current is not less than 10%FS

 $<sup>^{\</sup>star}4$  Rise/fall slew rate: 10%~90% of current rising from 0 to Max.current

<sup>\*5</sup> Minimum rise time: 10%~90% of current rise time

<sup>\*6</sup> Each module does not have a separate communication interface and can be controlled through the host frame interface

<sup>\*7</sup> It is a dual-channel dynamic power distribution module. The parameters of the two channels are the same. The maximum output of a single channel is 250W. The total power of the dual channels is not more than 300W. The average power of a single channel is 150W.

Para	meter		IT8732BP+	
	Voltage		0.1~60V	0.1~600V
	Current	0∼0.3A	0~3A	0~20A
	Power	0∼120W	0 UA	0~300W
Rated value	Resistance		$0.2\Omega \sim 10\Omega$	$10\Omega\!\sim\!7500\Omega$
Haleu value	Min. resistance	≒500mΩ	0.245	≒180mΩ
	MOV	0.15V at 0.3A	0.54V at 3A	3.6V at 20A
	Input leak current	0.15V at 0.5A		
	Voltage		0.06mA 1mV	0.7mA 10mV
	Current	0.1 0.1		
Set resolution	Power	0.1mA	0.1mA	1mA
			10mW	
	Resistance		16bit	12 V
Readback	Voltage		1 mV	10mV
resolution	Current	0.1mA	0.1mA	1mA
	Power		10mW	
	Voltage	,	025%+0.025%FS)	±(0.025%+0.025%FS)
_	Current	±(0.1%+0.1%FS)	±(0.05%+0.05%FS)	±(0.05%+0.05%FS)
Set accuracy	Power *3		0.2%+0.2%FS	
	Resistance*1	(	0.01%+0.08S * <sup>2</sup>	0.01%+0.0008S
Readback	Voltage		±(0.025%+0.025%FS)	
	Current	±(0.1%+0.1%FS)	±(0	.05%+0.05%FS)
accuracy	Power		±(0.2%+0.2%FS)	
Set temperature drift coefficient(% of	Voltage		$\leq$ 30ppm/°C + 20ppm/°C*FS	
Output/ C+Offset)	Current		≤50ppm/°C + 20ppm/°C*FS	
Readback Temperature	Voltage		≤30ppm/°C + 20ppm/°C*FS	
drift coefficient((% of Output/ C +Offset)	Current		≤50ppm/°C + 20ppm/°C*FS	
,	Rising *4	0.0001 ∼ 0.02A/µs	0.0001∼0.2A/µs	0.001∼2A/µs
Dynamic	Falling*4	0.0001 ~ 0.02A/µs	0.0001 ~0.2A/µs	0.001~2A/µs
response	Min.rising time*5	5.0001 0.02Aγμ3 ≒10μs	≒10µs	≒10μs
response	Dynamic frequency	Τομο	0.001∼20kHz	-10μ3
	Voltage		110V ±10% or 220V ±10%	
	Frequency		50/60Hz	
AC parameter	Imax.		0.3A	
	Power factor		J.	
Set stability-30min(%	Voltage	±(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)
Set stability-8h(%of		1(0.007/010.007/010)	1	1
Output/ C+Offset)	Current	/	/	1
Readback stability-30min	Voltage	· · · · · · · · · · · · · · · · · · ·	±(0.02%+0.02%FS)	· · · · · · · · · · · · · · · · · · ·
% of Output/ C +Offset)	Current	±(0.05%+0.08%FS)	,	020/ +0 020/ EC\
Readback stability-8h	Voltage	1(0.007/040.007/01/0)	±(0.	03%+0.03%FS)
% of Output/ C +Offset)	Current	/	1	1
Sense voltage	Ourient	,	≤2V	,
•				
Storage temperature	OPP	40=144	-20°C∼70°C	04011
		125W	310W	310W
Protection	OCP	0.33A	3.3A	22A
	OVP		63V	630V
1.1. 4 **	OTP		85°C	
Interfaces*6			LAN, USB, RS232	
Isolation(output to ground)			500V/DC/1mA	
Isolation(input to ground)			1.5KV/AC/5mA	
Units parallel connected			≤16(channel)	
Protection level			IP20	
			IEC 61010	
			fan	
			ian	
Cooling			0~40°C	
Safety regulation Cooling Working temperature Dimension(mm)				

<sup>\*1</sup> Input voltage/current is not less than 10%FS (FS is full scale)

<sup>\*2</sup> Range of resistance readback value: ( 1/(1/R+(1/R)\*0.01%+0.08),1/(1/R-(1/R)\*0.01%-0.08) )

<sup>\*3</sup> Input voltage/current is not less than 10%FS

<sup>\*4</sup> Rise/fall slew rate: 10%~90% of current rising from 0 to Max.current

<sup>\*5</sup> Minimum rise time: 10%~90% of current rise time

<sup>\*6</sup> Each module does not have a separate communication interface and can be controlled through the host frame interface

			IT8733BP+				
	Voltage	0.1~1	60V	0.1~600V			
	Current	0~0.3A	0∼3A	0~30A			
	Power	0 ~0.3A 0∼120W	J 0/1	000A			
tated value	Resistance	0~120W 0.2Ω~`	10Ω	$10\Omega\!\sim\!7500\Omega$			
ated value	Min. resistance	÷500mΩ	1000	1077 100072			
	MOV	0.15V at 0.3A	0.3V at 3A	3V at 30A			
	Input leak current	0.06r		0.7mA			
	Voltage	1m		10mV			
t resolution	Current	0.1mA	0.1mA	10mA			
it resolution	Power		10mW				
	Resistance		16bit				
eadback	Voltage	1 m <sup>1</sup>		10mV			
solution	Current	0.1mA	0.1mA	1mA			
Solution	Power		10mW				
	Voltage	±(0.025%+0.	.025%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	.08S *2	0.01%+0.0008S			
	Voltage	5.01/610	±(0.025%+0.025%FS)				
eadback	Current	±(0.1%+0.1%FS)	=(0.020 /0.000 /01 0)				
curacy	Power	2(0.17010.17010)	±(0.2%+0.2%FS)				
t temperature drift	Voltage		≤30ppm/°C +20ppm/°C*FS				
t temperature drift efficient(% of	Current						
adback Temperature			≤50ppm/°C +20ppm/°C*FS				
t coefficient((% of httput/ C +Offset)	Voltage		≤30ppm/°C +20ppm/°C*FS				
itput/ 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	<b>≒</b> 10μs	≒10µs	≒10μs			
	Dynamic frequency		0.001~20kHz				
	Voltage		110V ±10% or 220V ±10%				
	Frequency		50/60Hz				
C parameter	Imax.		0.3A				
	Power factor		≥0.99				
t stability-30min(%	Voltage	±(0.02%+0.029	%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)			
	Voltage	(11111111111111111111111111111111111111	/	(, , , , , , , , , , , , , , , , , , ,			
itput/°C+Offset)	Current	1	,	1			
dback stability-30min	Voltage	,	±(0.02%+0.02%FS)	,			
of Output/ C +Offset)	Current	±(0.05%+0.08%FS)	1	,			
adback stability-8h	Voltage	1(0.00 /010.00 /01 0)	/ /				
of Output/ C+Offset)			,				
	Current						
ense voltage			≤2V				
orage temperature	0.00		-20 °C ∼70 °C				
	OPP	125W	510W	510W			
rotection	OCP	0.33A	3.3A	33A			
	OVP	63\		630V			
	OTP		85 °C				
terfaces <sup>*6</sup>			LAN, USB, RS232				
ation(output to ground)			500V/DC/1mA				
ation(input to ground)		1.5KV/AC/5mA					
its parallel connected			≤16(channel)				
rotection level			IP20				
afety regulation			IEC 61010				
			fan				
ooling							
orking temperature			0~40°C				
imension(mm)			82mm*183mm*573mm				
I.W.			5kg				

<sup>\*1</sup> Input voltage/current is not less than 10%FS (FS is full scale)

<sup>\*2</sup> Range of resistance readback value: ( 1/(1/R+(1/R)\*0.01%+0.08),1/(1/R-(1/R)\*0.01%-0.08) )

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

<sup>\*4</sup> Rise/fall slew rate: 10%~90% of current rising from 0 to Max.current

<sup>\*5</sup> Minimum rise time: 10%~90% of current rise time

<sup>\*6</sup> Each module does not have a separate communication interface and can be controlled through the host frame interface



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