

## IT8700P+

# 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  $12A/\mu s$
- 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

### Applications





Fuel Cells



**Batteries** 



power supply



converter or PSU

DC-DC

-

High speed AC-DC converter or PSU

 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.

1 IT8700P+ High Speed Multi-channel DC Electronic Load

### Flexible modules combination

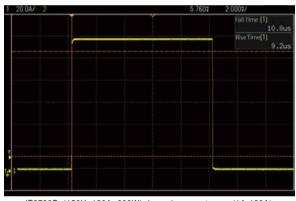
The IT8700P+ series is designed with removable modules, so that you can choose different modules according to your needs. These modules can work with the original IT8700P series modules too. There are high-performance microprocessor chips in each load module and mainframe. Parallel architecture is adopted 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/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.

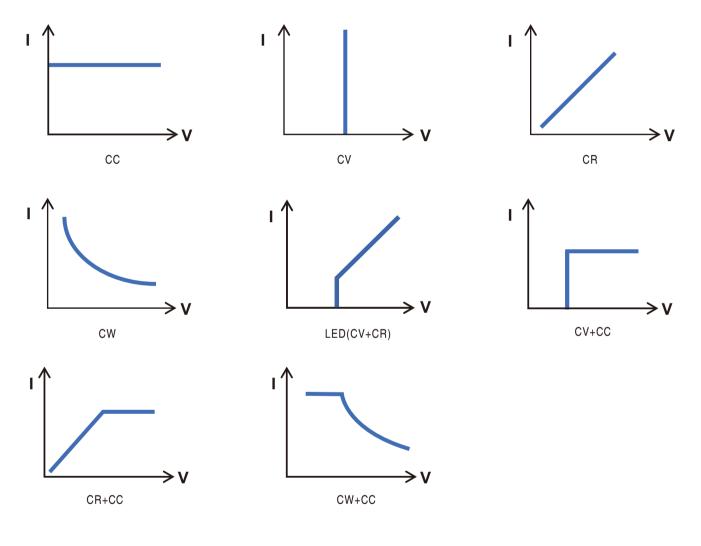
### Fast measurement of I-V characteristic

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.



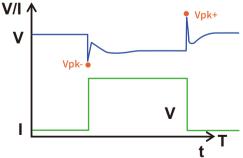
### 8 operation modes

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+ Specification**

Para	meter		IT8721P+				
	Voltage		0.1~18V		0.1~150V		
	Current	0∼0.6A	0~3A		0~20A		
	Power		0 - 0n	0~150W *7	0.200		
	Resistance	0~30W	$0.05\Omega \sim 10\Omega$	V~100V	10Ω~7500Ω		
Rated value		≒100mΩ	0.0512 - 1012	÷00m0	1022 - 750022		
	Min. resistance	0.09V at 0.6A	0.09V at 3A	≒20mΩ	0.6V at 20A		
	MOV						
	Input leak current		0.06mA		0.2mA		
	Voltage		1mV		10mV		
Set resolution	Current	0.1mA	0.1mA		1mA		
Set resolution	Power		10mW				
	Resistance		16bit				
Readback	Voltage		0.1mV		1mV		
	Current	0.1mA	0.1mA		1mA		
resolution	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)		
Set accuracy	Power *3		0.2%+0.2%FS				
	Resistance*1		0.01%+0.08S*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	_(,0.0,0)	±(0.2%+0.2%FS)	_(0.00 /0.00 /01 0)			
			≤50ppm/°C + 50ppm/°C*FS				
Set temperature drift oefficient(% of	Voltage						
Dutput/C+Offset)	Current		≤50ppm/°C + 50ppm/°C*FS				
Readback Temperature	Voltage		≤ 50ppm/°C + 50ppm/°C*FS				
rift coefficient((% of Dutput/C+Offset)	Current		$\leq$ 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		1				
et stability-30min(%	Voltage		±(0.02%+0.02%FS)		±(0.02%+0.02%FS)		
f Output/ C +Offset)	Current	±(0.05%+0.08%FS)	±(0.03%+0.03%FS)		±(0.03%+0.03%FS)		
Set stability-8h(% of		-(			_(		
output/ C +Offset)	Current	1	, , ,		/		
eadback stability-30min		,	±(0.02%+0.02%FS)		,		
% of Output/ C+Offset)	Voltage	±(0.05%+0.08%FS)	±(0.02 /8+0.02 /81 3)	· (0.000/ · 0.000/ EC)			
eadback stability-8h	Current	-(0.00/010.00/01 0)	1	±(0.03%+0.03%FS)			
	Voltage	1	1	1			
% of Output/°C +Offset)	Current	1	- 01/	1			
Sense voltage			≤2V				
Storage temperature			-20°C~70°C				
	OPP	33W	165W		165W		
Protection	OCP	0.66A	3.3A		22A		
	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				
Jnits parallel connected			$\leq$ 16(channel)				
Protection level			IP20				
			IEC 61010				
Safety regulation			fan				
Cooling							
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

 $^{\ast}4$  The loading current is not less than 2%FS

\*5 Minimum rise time: 10%~90% of current rise time

through the host frame interface \*7 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.

\*6 Each module does not have a separate communication interface and can be controlled



### **IT8700P+ Specification**

				IT8731P+		
	Voltage		0.1~18V			0.1~150V
	Current	0∼0.8A		0~4A		0~40A
	Power	0~60W			0~300W	
Rated value	Resistance		0.05Ω~10Ω			10Ω~7500Ω
	Min. resistance	$\doteqdot$ 75m $\Omega$			≒20mΩ	
	MOV	0.06V at 0.8A		0.08V at 4A		0.8V at 40A
	Input leak current		0.06mA			0.3mA
	Voltage		1mV			10mV
	Current	0.1mA		0.1mA		1mA
Set resolution	Power			10mW		
	Resistance			16bit		
	Voltage		0.1 mV			1mV
Readback	Current	0.1mA		0.1mA		1mA
esolution	Power			10mW		
	Voltage		±(0.025%+0.025%			±(0.025%+0.025%FS)
	Current	±(0.1%+0.1%FS)	=(0.020/010.020/0	±(0.05%+0.05%FS)		±(0.05%+0.05%FS)
et accuracy	Power *3	_(0.17010.17010)		0.2%+0.2%FS		
0. accaracy	Resistance *1		0.01%+0.08S			0.01%+0.0008S
	Voltage		0.01/070.000	±(0.025%+0.025%FS)		0.017070.00000
Readback	Current			±(0.025%+0.025%FS) ±(0.05%+0.05%FS)		
accuracy	Power			, ,		
et temperature drift	Voltage			±(0.2%+0.2%FS)		
pefficient(% of	-			$\leq$ 50ppm/°C + 50ppm/°C*FS		
utput/ C +Offset) eadback Temperature	Current			≤ 50ppm/°C + 50ppm/°C*FS		
rift coefficient((% of Dutput/ C +Offset)	Voltage			$\leq$ 50ppm/°C + 50ppm/°C*FS		
	Current			≤50ppm/°C + 50ppm/°C*FS		
	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∼0.4A/µs		0.001∼4A/µs
esponse	Min.rising time*5	≒10µs		≒10µs		≒10µs
	Dynamic frequency			0.001~20kHz		
	Voltage			110V ±10%or220V ±10%		
C parameter	Frequency			50/60Hz		
o 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)		±(0.03%+0.03%FS)		±(0.03%+0.03%FS)
et stability-8h(% of	Voltage		/			/
output/ C +Offset)	Current	/		/		/
eadback stability-30min	Voltage			±(0.02%+0.02%FS)		
of Output/ C +Offset)	Current	±(0.05%+0.08%FS)			±(0.03%+0.03%FS)	
eadback stability-8h	Voltage			/	(	
of Output/ C +Offset)	Current	1			/	
Sense voltage				≤2V		
Storage temperature				-20°C~70°C		
	OPP	65W		210W		210W
	OCP					
Protection	OVP	0.88A	18.5V	4.4A		44A 155V
	OTP		10.54	0590		1001
atorfoooc*6	UIF			85°C		
nterfaces*6				LAN, USB, RS232		
plation(output to ground)				500V/DC/1mA		
olation(input to ground)				1.5KV/AC/5mA		
nits parallel connected				$\leq$ 16(channel)		
rotection level				IP20		
Safety regulation				IEC 61010		
Cooling				fan		
Norking temperature				0∼40°C		
vorking temperature						
Dimension(mm)				82mm*183mm*573mm		

\*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

\*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+ Specification**

				IT8722P+		
	Voltage		0.1~18V			0.1~150V
	Current	0∼0.6A		0~3A		0~20A
	Power	0∼48W			0~250W <sup>*7</sup>	
ated value	Resistance		$0.05\Omega \sim 10\Omega$			10Ω~7500Ω
	Min. resistance	≒80mΩ			≒20mΩ	
	MOV	0.05V at 0.6A		0.05V at 3A		0.4V at 20A
	Input leak current	0.001 41 0.071	0.06mA	0.000 400,0		0.2mA
	Voltage		1mV			10mV
	Current	0.1mA	1111 V	0.1mA		1mA
et resolution	Power	U. IIIIA		10mW		IIIA
	Resistance			16bit		
			0.1mV	JIGOT		1
leadback	Voltage	0.4	0.1111	0.4		1mV
esolution	Current	0.1mA		0.1mA		1mA
	Power		(	10mW		
	Voltage		±(0.025%+0.025%	,		±(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
a a dha a l-	Voltage			±(0.025%+0.025%FS)		
eadback	Current	±(0.1%+0.1%FS)			±(0.05%+0.05%FS)	
ccuracy	Power			±(0.2%+0.2%FS)		
et temperature drift efficient(%of	Voltage			$\leq$ 50ppm/°C + 50ppm/°C*FS		
efficient(%of itput/ C +Offset)	Current			$\leq$ 50ppm/°C + 50ppm/°C*FS		
adback Temperature	Voltage			$\leq$ 50ppm/°C + 50ppm/°C*FS		
ft coefficient((%of utput/°C+Offset)	Current			$\leq$ 50ppm/°C + 50ppm/°C*FS		
ilpul/C+Olisel)	Rising *4	0.0001~0.06A/µs				0.001~2A/us
mamia	Falling <sup>*4</sup>			0.0001∼0.3A/µs 0.0001∼0.3A/µs		0.001~2A/µs
ynamic	Min.rising time*5	0.0001~0.06A/µs				
sponse	Ū	≒10µs		≒10µs		≒10µs
	Dynamic frequency			0.001~20kHz		
	Voltage			110V ±10%or220V ±10%		
C parameter	Frequency			50/60Hz		
o parameter	Imax.			0.3A		
	Power factor			/		
t 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)
t stability-8h(%of	Voltage		/			1
tput/ C +Offset)	Current	/		/		/
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	/			/	
ense voltage				≤2V		
orage temperature				-20°C~70°C		
shage temperature	OPP	E0.014/				07514
		52.8W		275W		275W
rotection	OCP	0.66A	10 51	3.3A		22A
	OVP		18.5V			155V
	OTP			90°C		
terfaces <sup>*6</sup>				LAN, USB, RS232		
ation(output to ground)				500V/DC/1mA		
lation(input to ground)				1.5KV/AC/5mA		
its parallel connected				$\leq$ 16(channel)		
rotection level				IP20		
afety regulation				IEC 61010		
ooling				fan		
orking temperature				0∼40°C		
imension(mm) .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

\*7 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.

### **IT8700P+ Specification**

Para	meter		IT8723P+				IT8732P+		
	Voltage	0.1~	18V	0.1~150V		0.1~18V		0.1~150V	
	Current	$0\sim 0.9 { m A}$	0~4.5A	0~45A	0∼1.2A		0~6A	0~60A	
	Power	0 ~ 60W 0~300W			0~96W 0~400W			400W	
Rated value	Resistance	0.05Ω		$0.05\Omega\!\sim\!7500\Omega$		$0.05\Omega \sim 10\Omega$		$0.05\Omega{\sim}$ 7500 $\Omega$	
naleu value	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		mΔ	0.2mA		0.06mA		0.2mA	
	Voltage	11		10mV		1mV		10mV	
	Current	0.1mA	0.1mA	1mA	0.1mA		0.1mA	1mA	
Set resolution	Power	0.1111/	10mW	1117.1	0.1111/1		10mW	1110 (	
	Resistance		16bit				16bit		
		0.1		1mV		0.1mV	TODIC	1mV	
Readback	Voltage	0.1mA	0.1mA	1mA	0.1mA	0.1111	0.1mA	1mA	
resolution	Current	U.IIIA		IIIIA	U.IIIIA			IIIIA	
	Power	(0.0050) . 0.1	10mW		. (0.00	0.0000	10mW	(0.0050) 0.0050(50)	
	Voltage	±(0.025%+0.0	,	±(0.025%+0.025%FS)		25%+0.025%	,	±(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)		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	).08S *2	0.01%+0.0008S	0	.01%+0.085	S*2	0.01%+0.0008S	
Decelheral	Voltage		±(0.025%+0.025%FS)			±(0.0	25%+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	≤:	50ppm/°C + 50ppm/°C *FS	;		$\leq$ 50 ppr	m/°C + 50ppm/°C*	FS	
coefficient(% of Output/C+Offset)	Current	≤!	≤ 50ppm/℃ + 50ppm/℃*FS			$\leq$ 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 *FS	1	≤50ppm/℃ + 50ppm/℃*FS				
Output/ C +Offset)	Rising	0.0001~0.09A/us	0.001~4.5A/us				0.001~5A/µs		
Dunamia		0.0001~0.09A/µs	0.0001 ∼0.45A/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			· ·		5 0.0			
response *4	Min.rising time*5	≒10µs	≔10µs	≔10µs	≔10µs	0	≔10µs	≔10µs	
	Dynamic frequency		0.001~20kHz				.001~20kHz		
	Voltage	1	10V ±10%or220V ±10%		110V ±10%or220V ±10%				
AC parameter	Frequency		50/60Hz		50/60Hz				
	lmax.		0.3A		0.3A				
	Power factor		≥0.99		≥0.99				
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)			±(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%+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)			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		
2.5. ago temperaturo	OPP	66W	310W	310W	100W		410W	410W	
	OCP	0.99A	4.95A	49.5A	1.32A		6.6A	66A	
Protection	OVP				1.02A	10 51/	0.0A		
		18	.5V	155V		18.5V	05 °C	85V	
Late data a *C	OTP		105°C LAN, USB, RS232			1.45	95°C		
Interfaces*6					I, USB, RS232				
Isolation(output to ground)					00V/DC/1mA				
Isolation(input to ground)			1.5KV/AC/5mA				5KV/AC/5mA		
Units parallel connected			$\leq$ 16(channel)			5	≤16(channel)		
Protection level			IP20				IP20		
Safety regulation			IEC 61010				IEC 61010		
Cooling			fan				fan		
Working temperature			0∼40°C				0~40°C		
Dimension(mm)		82	2mm*183mm*573mm			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

 $^{*}4$  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

### **IT8700P+ Specification**

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	0~	600W	$0\!\sim\!120W$	0	~250W <sup>*7</sup>		
Rated value	Resistance	0.05Ω	$\sim 10\Omega$	$10\Omega \sim 7500\Omega$	0.05Ω	$\sim$ 10 $\Omega$	$0.05\Omega \sim 7500\Omega$		
	Min. resistance	≒50mΩ ≒13mΩ		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	5mA	0.3mA	0.07	7mA	0.7mA		
	Voltage		mV	10mV	1	mV	10mV		
	Current	0.1mA	1mA	10mA	0.1mA	0.1mA	1mA		
Set resolution	Power		10mW	101101		10mW			
	Resistance		16bit			16bit			
	Voltage	0	1 mV	1mV	1	mV	10mV		
Readback	Current	0.1mA	0.1mA	1mA	0.1mA	0.1mA	1mA		
resolution	Power	0. IIIA		IIIIA	0.1111A	10mW	IIIIA		
		. (0.0050)	10mW	(0.0050( .0.0050( E0)	. (0.0050)		· (0.00E0/ · 0.00E0/ E0)		
	Voltage	±(0.025%+	· · ·	±(0.025%+0.025%FS)	±(0.025%+)	· · ·	±(0.025%+0.025%FS)		
Cot o coursour	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	0.0101	0.2%+0.2%FS	0.040/ 0.00000	0.0101	0.2%+0.2%FS	0.040/ 0.00000		
	Resistance*1	0.01%+	0.08S*2	0.01%+0.0008S	0.01%+		0.01%+0.0008S		
Readback	Voltage		±(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%FS)		
accuracy	Power		±(0.2%+0.2%FS)			±(0.2%+0.2%FS)			
Set temperature drift coefficient(% of	Voltage	$\leq$ 50	)ppm/°C + 50ppm/°C*FS		≤30	0ppm/°C + 50ppm/°C *F	S		
Dutput/ C +Offset)	Current	$\leq$ 50	≤ 50ppm/°C + 50ppm/°C*FS			≤50ppm/°C + 50ppm/°C *FS			
Readback Temperature	Voltage	≤50	≤ 50ppm/°C + 50ppm/°C*FS			≤ 30ppm/ <sup>°</sup> C + 50ppm/ <sup>°</sup> C *FS			
drift coefficient((% of Dutput/ C +Offset)	Current	≤50	)ppm/°C + 50ppm/°C*FS		≤50	0ppm/°C + 50ppm/°C *F	S		
	Rising *4	0.0001~0.24A/us	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	1 1040	0.001~20kHz	τομο		0.001~20kHz	10µ3		
	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								
<b>1</b>		. (0.000/ . 0.0)	≥0.99	. (0.000/0.000/	/ ±(0.02%+0.02%FS)				
Set stability-30min(%	Voltage	±(0.02%+0.02	,	±(0.02%+0.02%FS)	· (0.050/ · 0.000/ FC)	1 /	· (0.020/ · 0.020/ EC)		
f 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	1		
Dutput/ C +Offset)	Current	/	/	/	1	/	1		
leadback 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	0.03%FS)	±(0.05%+0.08%FS)	±(0.03%-	+0.03%FS)		
leadback stability-8h	Voltage		/			/			
% of Output/ C +Offset)	Current	/		/	/		/		
Sense voltage			$\leq 2V$			≤2V			
Storage temperature			-20°C~70°C			-20 $^\circ\mathrm{C}$ $\sim$ 70 $^\circ\mathrm{C}$			
	OPP	125W	610W	610W	132W	275W	275W		
Protoction	OCP	2.64A	13.2A	132A	0.33A	3.3A	16.5A		
Protection	OVP		3.5V	155V	63	3V	630V		
	OTP		105°C			90 °C			
nterfaces*6	•		LAN, USB, RS232			LAN, USB, RS232			
solation(output to ground)			500V/DC/1mA		500V/DC/1mA				
solation(input to ground)			1.5KV/AC/5mA			1.5KV/AC/5mA			
						$\leq$ 16(channel)			
Units parallel connected			≤16(channel)			IP20			
Protection level			IP20						
Safety regulation			IEC 61010			IEC 61010			
Cooling			fan			fan			
Working temperature			0∼40°C			0~40°C			
Dimension(mm)			82mm*183mm*573m	m	8	32mm*183mm*573mm			
N.W.			5kg			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

\*7 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.



### **IT8700P+ Specification**

Para	meter			IT8732BP+		
	Voltage		0.1~60V			0.1~600V
	Current	0~0.3A		0~3A		0~20A
	Power	$0\!\sim\!120W$			0~300W	
ated value	Resistance		$0.2\Omega\!\sim\!10\Omega$		0 00011	$10\Omega\!\sim\!7500\Omega$
	Min. resistance	≔500mΩ			≔180mΩ	
	MOV	0.15V at 0.3A		0.54V at 3A		3.6V at 20A
	Input leak current		0.06mA			0.7mA
	Voltage		1mV			10mV
	Current	0.1mA	11114	0.1mA		1mA
Set resolution	Power	0.111A		10mW		IIIA
	Resistance			16bit		
	Voltage		1	ΤΟDIL		10
Readback		0.4 .4	1 mV	0.4		10mV
esolution	Current	0.1mA		0.1mA		1mA
	Power			10mW		
	Voltage		±(0.025%+0.025%			±(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
leadback	Voltage			±(0.025%+0.025%FS)		
	Current	±(0.1%+0.1%FS)			±(0.05%+0.05%FS)	
ccuracy	Power			±(0.2%+0.2%FS)		
et temperature drift efficient(%of	Voltage			≤30ppm/°C + 20ppm/°C*FS		
utput/ C +Offset)	Current			≤50ppm/°C + 20ppm/°C*FS		
adback Temperature	Voltage			$\leq$ 30ppm/°C + 20ppm/°C*FS		
ift coefficient((% of utput/ C +Offset)	Current			$\leq$ 50ppm/°C + 20ppm/°C*FS		
	Rising *4	0.0001~0.02A/µs		0.0001~0.2A/µs		0.001~2A/µs
vnamic	Falling*4	0.0001 ~ 0.02A/µs		0.0001 ~0.2A/µs		0.001~2A/µs
,	Min.rising time*5	0.0001**0.02A/µs ≒10µs		÷10µs		
esponse	Dynamic frequency	ιυμο		- 10µs 0.001∼20kHz		≔10µs
	Voltage			110V ±10% or 220V ±10%		
	Frequency			50/60Hz		
C parameter	Imax.					
				0.3A		
	Power factor		(2.000) 0.000( 50)	1		(0.000/0.000/
et stability-30min(%	Voltage	(0.050) 0.000/ 50	±(0.02%+0.02%FS)	(0.000/ 0.000/ 50)		±(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		/			/
utput/ C +Offset)	Current	/		/		/
adback stability-30min	Voltage	(a. a. a		±(0.02%+0.02%FS)		
of Output/ C +Offset)	Current	±(0.05%+0.08%FS)			±(0.03%+0.03%FS)	
adback stability-8h	Voltage			/		
Gof Output/ C +Offset)	Current	/			1	
ense voltage				≤2V		
torage temperature				-20°C~70°C		
	OPP	125W		310W		310W
rotaction	OCP	0.33A		3.3A		22A
rotection	OVP		63V			630V
	OTP			85°C		
iterfaces*6				LAN, USB, RS232		
plation(output to ground)				500V/DC/1mA		
plation(input to ground)				1.5KV/AC/5mA		
hits parallel connected						
				≤ 16(channel)		
rotection level				IP20		
afety regulation				IEC 61010		
Cooling				fan		
orking temperature				0∼40°C		
imension(mm)				82mm*183mm*573mm		
I.W.				5kg		

\*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

\*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+ Specification**

			IT8733BP+	
	Voltage		0.1~60V	0.1~600V
	Current	0~0.3A	0~3A	0~30A
	Power	0~120W		
ated value	Resistance		$\Omega \sim 10\Omega$	10Ω~7500Ω
	Min. resistance	≒500mΩ		
	MOV	0.15V at 0.3A	0.3V at 3A	3V at 30A
	Input leak current	(	0.06mA	0.7mA
	Voltage		1mV	10mV
	Current	0.1mA	0.1mA	10mA
et resolution	Power		10mW	
	Resistance		16bit	
	Voltage		1 mV	10mV
eadback	Current	0.1mA	0.1mA	1mA
solution	Power	0.1111	10mW	1110 (
	Voltage	+(0.025)	%+0.025%FS)	±(0.025%+0.025%FS)
	Current		±(0.05%+0.05%FS)	±(0.023%+0.023%FS)
et accuracy	Power*3	±(0.1%+0.1%FS)	0.2%+0.2%FS	±(0.00 /0±0.00 /01 O)
accuracy				0.010/ +0.00000
	Resistance *1	0.01	%+0.08S <sup>*2</sup>	0.01%+0.0008S
eadback	Voltage		±(0.025%+0.025%FS)	
curacy	Current	±(0.1%+0.1%FS)	(0.00/ .0.00/ 50)	
temperature drift	Power		±(0.2%+0.2%FS)	
fficient(%of	Voltage		≤ 30ppm/ C + 20ppm/ C *FS	
put/ C +Offset)	Current		≤ 50ppm/ °C + 20ppm/ °C *FS	
dback Temperature coefficient((% of	Voltage		≤30ppm/°C + 20ppm/°C *FS	
tput/ C +Offset)	Current		≤50ppm/°C + 20ppm/°C *FS	
	Rising *4	0.0001∼0.02A/µs	0.0001~0.2A/µs	0.001~2A/µs
/namic	Falling <sup>*4</sup>	0.0001~0.02A/µs	0.0001~0.2A/µs	0.001~2A/µs
sponse	Min.rising time*5	≕10μs	≔10µs	≔10µs
	Dynamic frequency		$0.001{\sim}20 kHz$	
	Voltage		110V ±10% or 220V ±10%	
	Frequency		50/60Hz	
C parameter	Imax.		0.3A	
	Power factor		≥0.99	
t stability-30min(%	Voltage	±(0.02%+		±(0.02%+0.02%FS)
Output/ C +Offset)	Current	±(0.05%+0.08%FS)	±(0.03%+0.03%FS)	±(0.03%+0.03%FS)
	Voltage	_(		_(
tput/°C +Offset)	Current	/	,	1
dback stability-30min	Voltage	/	±(0.02%+0.02%FS)	/
of Output/ C +Offset)	Current	±(0.05%+0.08%FS)	±(0.02%+0.02%F3)	
adback stability-8h	Voltage	±(0.00 /01 0)		/
of Output/ C +Offset)	Current			
ense voltage	Guileni		/ ≤2V	
•				
orage temperature	OPP	10511	-20 °C ~70 °C	
	OPP	125W	510W	510W
rotection	OCP	0.33A	3.3A	33A
	OVP		63V	630V
**	OTP		85 °C	
erfaces <sup>*6</sup>			LAN, USB, RS232	
ation(output to ground)			500V/DC/1mA	
ation(input to ground)			1.5KV/AC/5mA	
ts parallel connected			$\leq$ 16(channel)	
otection level			IP20	
afety regulation			IEC 61010	
ooling			fan	
orking temperature			0~40 °C	
imension(mm)			82mm*183mm*573mm	
.W.			5kg	
			ung	

\*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



This information is subject to change without notice.For more information, please contact ITECH.

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